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Current Meter, Meteorological, and Sea-Level Observations for Browns Bank, Nova Scotia April 1983 to May 1985

R.R. Lively

Physical and Chemical Sciences Branch
Scotia-Fundy Region
Department of Fisheries and Oceans

Bedford Institute of Oceanography
P.O. Box 1006
Dartmouth, Nova Scotia
Canada B2Y 4A2

March 1989

Canadian Technical Report of Hydrography and Ocean Sciences No. 113

Fisheries and Oceans
Pêches et Océans

Canada

Canadian Technical Report of Hydrography and Ocean Sciences

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Bedford Institute of Oceanography
P.O. Box 1006
Dartmouth, Nova Scotia
B2Y 4A2

90-05158/

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Cat. No. FS 97-18/113E ISSN 0711-6764

Correct citation for this publication:

Lively, R.R. 1989. Current meter, meteorological, and sea-level observations for Browns Bank, Nova Scotia, April 1983 to May 1985. Can. Tech. Rep. Hydrogr. Ocean Sci. No. 113: v + 304 pp.

Abstract

Lively, R.R. 1989. Current meter, meteorological, and sea-level observations for Browns Bank, Nova Scotia, April 1983 to May 1985. Can. Tech. Rep. Hydrogr. Ocean Sci. No. 113: v + 304 pp.

This report presents the results of the Browns Bank mooring experiment for the time period April 1983 to May 1985. Auxiliary data in this report includes: meteorological data for Yarmouth, Shearwater, and Sable Island and sea levels for Yarmouth, Halifax, Shelburne and Clark's Harbour for April 1983 to May 1985.

Résumé

Lively, R.R. 1989. Current meter, meteorological, and sea-level observations for Browns Bank, Nova Scotia, April 1983 to May 1985. Can. Tech. Rep. Hydrogr. Ocean Sci. No. 113: v + 304 pp.

Ce rapport présente les résultats de l'expérience d'amarrage prolongé pour Brown's Bank l'intervalle avril 1983 à mai 1985. Parmi les données auxiliaires pour le rapport, l'on retrouve: des données météorologiques pour Yarmouth, Shearwater et l'île de Sable et des données sur les niveaux de la mer à Yarmouth, Halifax, Shelburne et Clark's Harbour pour la période de avril 1983 à mai 1985.

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INTRODUCTION

This report presents Browns Bank current meter and tide gauge data in a statistical and graphical form for the time period April 1983 to May 1985. Auxiliary data relevant to this experiment are also included for the time period April 1983 to May 1985. Auxiliary data consist of wind velocity and barometric pressure data from the meteorological stations at Yarmouth, Shearwater and Sable Island, as well as sea levels for Halifax, Shelburne, Yarmouth and Clark's Harbour. The purpose of the experiment was to investigate the structure and dynamics of the Browns Bank gyre, particularly the cross-isobath component of the circulation, while monitoring input to the region from the Scotian Shelf and slope water via Northeast Channel. Turbulent dispersion in the surface layers between Browns Bank and surrounding waters was also investigated (Smith, 1989). Accurate measurements of the mass field and the current field were required to distinguish the tidally-rectified current from other components of the circulation, particularly the gyre around the shallow cap of the Browns Bank and the significant seasonal baroclinic circulation.

The plan of the project was to extend the measurements at site C2 (Cape Sable experiments November 1978 to April 1983; Lively, 1984, 1985) to monitor Scotian Shelf input to the region, particularly in the winter (Fig. 1). Three other moorings were deployed at sites C7, C8, and C3 to monitor the bank circulation along the 110 meter isobath. The shallow moorings C9 and C10 measured shear on the cap and aided in the interpretation of the dispersion studies. Four of the six moorings were placed in April 1983 (Fig. 1) and the full array was moored for the winter/spring period of 83/84. Two mooring sites remained in place from May 1984 to May 1985 to monitor conditions in the inshore zone (C2) and on the bank (C10).

A performance chart (Fig. 2) shows the data return for each deployment. The overall return of useful data from this portion of the experiment was 85%. Bottom pressure was measured during all of the deployments at mooring site C2.

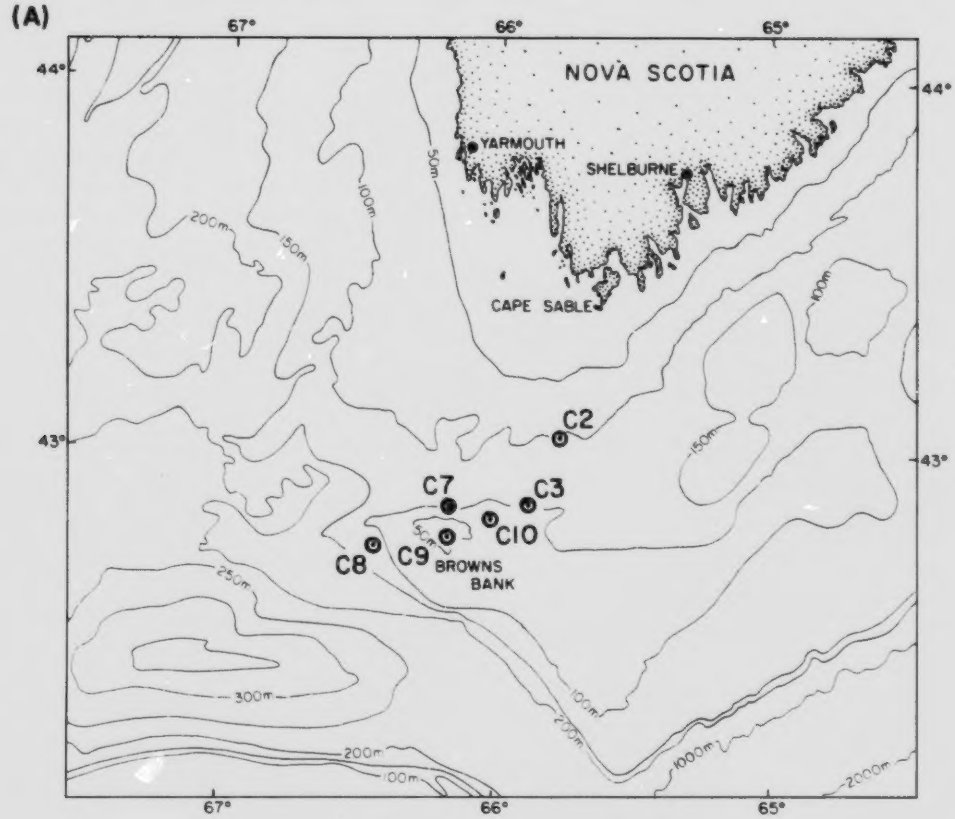
Extensive hydrographic surveys of seven-fourteen days duration were also carried out in the area on the five mooring cruises (to be published in an atlas of the Cape Sable area at a later date). Ametek Straza doppler current profile data, on-site wind data (using a Gill anemometer) and wave data (visual observations and WAVEC pitch-and-roll buoy) were collected on each of the five mooring cruises. The current profile, wind and wave data were used along with various types of drifters (drogued hifliers and satellite-tracked) in the dispersion studies part of the experiment. The data mentioned in this paragraph are not included in this report.

MOORING LOCATIONS

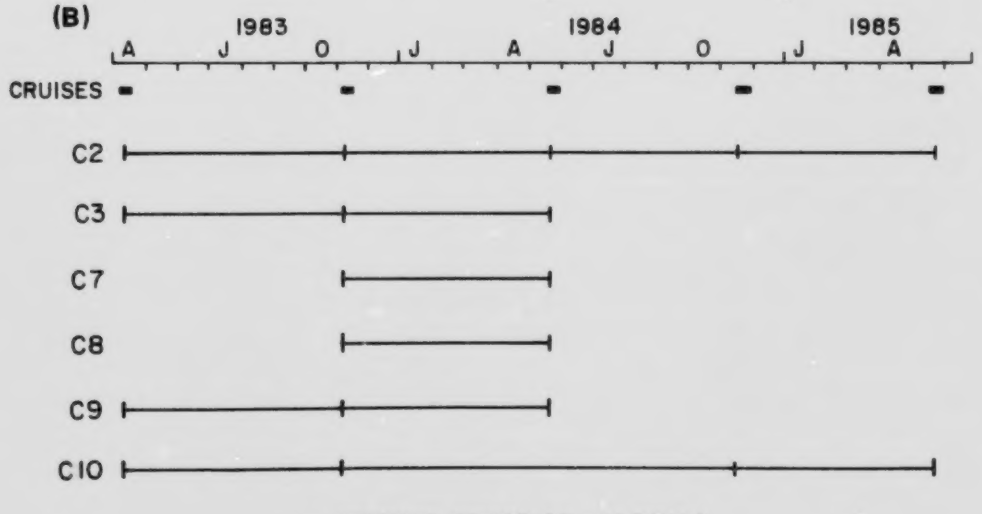
The current meter moorings for the Browns Bank experiment were originally laid out as shown in Table 1 and Figure 1. Some depths and locations of the moorings may vary slightly from one deployment to the next. A table containing the accurate mooring positions and depths is given for each mooring period (Tables 10 to 13). A three-legged mooring design was used for all of the mooring sites to isolate the near-surface from the deeper measurements. This minimized the influence of surface wave action on the deep current measurements. Each site was placed within a triangular array of buoys to protect the current meter moorings from the intense fishing activities in the area. All of the sites except C9 had at least three instruments placed at near-surface (≈15 m), mid-depth and bottom (10 m above). At C9 there were only two instruments, near-surface and bottom.

On the northern slope sites (C3, C7), an additional instrument was placed between the near-surface and mid-depth instruments during the full deployment to detect vertical shear in the upper layers.

Aanderaa (RCM-5) current meters were used as the primary instrument to collect current measurements for this experiment, because of the necessity to measure conductivity at all sites. However, because Aanderaa current meters perform poorly in the presence of high-frequency fluctuations (Smith et al. 1984) VACMs (vector averaging current meters) were used during both deployments for site C9. After the primary deployment of C3 it was decided to use a VACM current meter for the main mooring array, as it was felt that the high-frequency fluctuations during the winter months would be too great for the Aanderaa current meters.


(A)
67°
66°
65°
44°
43°
NOVA SCOTIA
YARMOUTH
SHELBURNE
CAPE SABLE
50m
100m
150m
200m
250m
300m
1000m
2000m
C2
C3
C7
C8
C9
C10
BROWNS BANK

⊙ MOORING SITES FOR BROWNS BANK EXPERIMENT (1983-85)



▬ MOORING CRUISE (7 - 14 DAYS)

Figure 1. Location of Instruments Moored During Browns Bank Experiment April 1983 to May 1985 (A) Mooring Array (B) Time Table

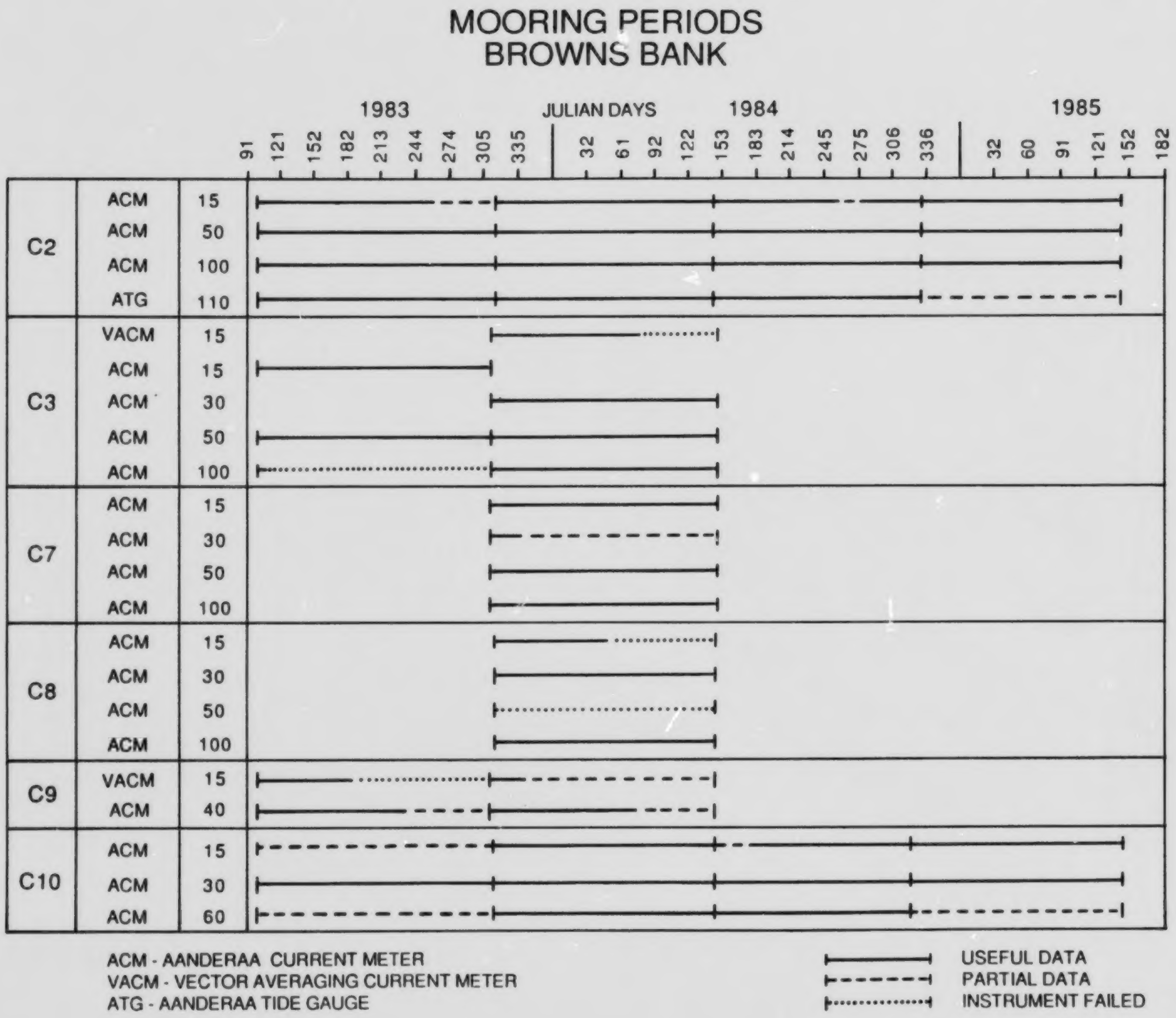


Figure 2 Performance Chart for Instruments Moored During the Browns Bank Experiment April 1983 to May 1985

TABLE 1

BROWNS BANK MOORING ARRAY

STATION	LATITUDE	LONGITUDE	SOUNDING	INSTRUMENT DEPTH	TYPE[*]	ANGLE-OF-SECTION[✓]
C2	43° 02.0'N	65° 47.0'W	110 m	15 m 50 m 100 m 110 m	ACM ACM ACM ATG	104°
C3[+]	42° 52.0'N	65° 57.0'W	110 m	15 m 30 m[@] 50 m 100 m	ACM,VACM[#] ACM ACM ACM	104°
C7[x]	42° 51.0'N	66° 09.0'W	110 m	15 m 30 m 50 m 100 m	ACM ACM ACM ACM	90°
C8[x]	42° 44.0'N	66° 24.0'W	110 m	15 m 30 m 50 m 100 m	ACM ACM ACM ACM	330°
C9[+]	42° 48.0'N	66° 12.0'W	55 m	15 m 40 m	VACM ACM	180°
C10	42° 50.0'N	66° 03.0'W	70 m	15 m 30 m 60 m	ACM ACM ACM	114°

[+] These sites were occupied for Cruises 83-001 and 83-034.

[x] These sites were occupied for Cruise 83-034 only.

[@] This depth was used for Cruise 83-034 only.

[#] VACM was used at site C3 for Cruise 83-034 only.

[*] ACM = Aanderaa Current Meter
ATG = Aanderaa Tide Gauge
VACM = Vector Averaging Current Meter

[✓] Angle-of-Section is the orientation of the v-axis in the right-handed co-ordinate system in which the currents are resolved eg: Angle-of-section = 104°T means positive v and u are directed toward 104° and 194°T respectively.

DATA ACCURACY

The factory quoted specifications for the Aanderaa and VACM current meters plus the Aanderaa tide gauges are as follows:

AANDERAA (RCM-5)

CURRENT SPEED	± 1 cm/sec or ± 2% of actual speed, whichever is greater threshold 1.5 cm/sec
CURRENT DIRECTION	± 5 degrees with speed 5-100 cm/sec
CRYSTAL TIMER	± 2 sec/day
TEMPERATURE	± 0.15°C
CONDUCTIVITY	0 to 70 mmho/cm 0.1% range = .07 mmho/cm

VACM (vector averaging current meter)

CURRENT SPEED	threshold 2.57 cm/sec range 2.57 cm/sec to 308.8 cm/sec rotor constant 34.6 cm water revolution
CURRENT DIRECTION	compass 0°-360°, 2.8° resolution vane 0°-360°, 2.8° resolution
CRYSTAL TIMER	± 1 sec/day
TEMPERATURE	calibrated thermistor ± 0.01°C standard thermistor ± 0.1°C

AANDERAA TIDE GAUGE

PRESSURE	0.01% of range (0 to 400 psi) = .04 psi resolution 0.001% of range = .004 psi
TEMPERATURE	range -5° to 35°C, 0.05°C
CRYSTAL TIMER	± 2 sec/day

The temperature and conductivity sensors from the Aanderaa current meters were calibrated in-house before and after deployment. The precalibrations were found to be within the manufacturer's specifications.

However, a major problem with fouling of the conductivity sensors was discovered during the postrecovery calibrations (Boyce, 1986) that rendered the salinity records for all deployments prior to May 1984 useless. The salinity time series suggested that the calibration degraded most severely over the latter portions of the records with typical salinity errors (current meter minus standard) of -0.2 to -1.2 on recovery. This problem was remedied with the May 1984 deployment by applying antifoulant paint to the conductivity cells which reduced the post-deployment calibration errors to within ± 0.10. Salinity comparisons were made between the Aanderaa current meters and nearby CTD stations (Table 2) from both mooring and recovery cruises. The differences were not applied to the data in this report.

A compass swing was done before each Aanderaa current meter was deployed. Each instrument was placed on a compass swing table and rotated both clockwise and counterclockwise in 10.25^o increments through a complete revolution. The readings for the clockwise and counterclockwise revolutions were averaged to produce the calibration points to correct the direction readings. Deviations of order $\pm 3^o$ were applied in processing the records.

The VACM current meters were calibrated before each deployment for compass error and were found to be within the manufacturer's specifications. When a compass did not meet the manufacturer's specifications the compass was replaced with one that did. Temperature sensors for the VACM current meters are calibrated in-house approximately once every two years. Then, before each deployment the temperature sensors are tested with a resistance box to make sure the temperatures fall within range of the calibration values. The resistance box is calibrated annually.

Pressure sensors in the Aanderaa tide gauges are calibrated annually. The temperature sensors were tested before each deployment and were found to be within the manufacturer's specifications. However, in 1984 it was found that the pressure sensor would change by ± 1.3 mbar when the temperature varied by ± 1°C. This was originally stated in the manufacturer's specifications in 1978, but not in any specifications published thereafter.

DATA PROCESSING

Data that were recorded by the Aanderaa current meters were translated to computer-compatible tape. The encoder numbers were converted to physical units using the calibration constants determined by predeployment calibration at Bedford Institute of Oceanography (BIO). The local magnetic variation was taken from chart 5375 (Haslan, 1981). Temperature, conductivity and pressure values were used to calculate salinity using the UNESCO formula (Perkin and Lewis, 1980). No account was taken of the mismatch between temperature and conductivity sensor responses. Potential density anomaly was calculated from temperature, salinity and pressure using the UNESCO formula.

The VACM data were translated to computer-compatible tape using a series of programs available from Ocean Circulation Division at BIO (Hendry, 1979). A 10 cm Savonius rotor is used to measure speed, but direction is sensed by a small (17 x 9 cm) vane with a 1 sec time constant. Every eighth of a revolution of the rotor, the compass and vane orientations are measured and combined to give discrete current direction which is then converted to Cartesian velocity components (North and East magnetic). For the duration of the sampling interval, these components are summed to produce a true vector-average velocity measurement. Instantaneous direction is computed as the difference between compass and vane orientations which are recorded in 7-level binary (360° = 128 divisions). Water temperature is derived from the frequency of an oscillator circuit which includes a thermistor, and two sets of calibrations are needed to convert frequency to temperature (Payne et al., 1976).

The Aanderaa tide gauge data were translated to computer-compatible tape. Calibration constants determined from the predeployment calibrations were used to convert the encoder numbers to physical units. An arbitrary low water datum was obtained by subtracting the lowest pressure encountered from each observation. The tide gauge data were then converted to the BIO current meter format (CMSYST) to permit further analysis.

The initial Cape Sable experiment publication (Lively, 1984) contains a more detailed explanation of the procedures used to process data from the above instruments. Raw data (30-minute interval) for all of the above instruments were processed to 1-hour interval using a boxcar filter which produces a three point running mean. The low-frequency filtered data for 6-hour intervals were created from the 1-hour intervals using a Cartwright low-pass filter with 129 weights and a cut-off frequency of 0.036 cph (25% power is passed at 28.4 hours) (AOL, 1979). Wind stress components (TAUX, TAUY) were calculated using a quadratic stress law where the drag coefficient's dependence on the wind speed is taken into account for the 10 meter surface winds (Smith and Banke, 1975). The stress was resolved into east (TAUX) and north (TAUY) components.

DATA PRESENTATION

The meteorological, sea level data (April 1983 to May 1985) and the current meter, tide gauge data from Browns Bank (cruises 83-001, 83-034, 84-008, 84-043) are presented in the following order:

(a) Table 3 - Statistics of the meteorological data for Yarmouth, Shearwater, and Sable Island.

Table 4 - Statistics of the sea level data for Halifax, Shelburne, Yarmouth, and Clark's Harbour.

Table 5 - Statistics of the current meter data for all sites in the mooring array.

Table 6 - Statistics of the tide guage data for site C2.

The statistics in tables 4 and 5 are given for time periods corresponding to the current meter moorings.

(b) Table 7 - Record-mean tidal current ellipses, tidal constituents for temperature, salinity and density anomaly from the current meter data for all sites in the mooring array.

Table 8 - Tidal constituents for temperature and bottom pressure from the tide gauge data at site C2.

Table 9 - Tidal constituents for sea level data from Halifax, Yarmouth, Shelburne, Clark's Harbour for the current meter periods where the data runs are longer than 29 days.

(c) Wind velocity as a progressive vector at 1-hour intervals (April 1983 to June 1985 for the progressive vector plots only), stick plots filtered and subsampled at 6-hour intervals and the meteorological data plotted as a time series filtered and subsampled at 6-hour intervals for Yarmouth, Shearwater and Sable Island.

(d) Sea level data plotted as 1-hour time series and again as a time series filtered and subsampled at 6-hour intervals for Yarmouth, Halifax, Shelburne and Clark's Harbour.

(e) Current velocity as a progressive vector (1-hour) and stick plots filtered and subsampled at 6-hour intervals.

(f) Current rate, true direction, temperature and salinity as a time series plot (1-hour intervals).

(g) Current velocity (U and V components, co-ordinate systems defined in Table 1), temperature, salinity and density anomally (SIGT) as a time series plot filtered and subsampled at 6-hour intervals.

(h) Current velocity as a joint distribution diagram.

(i) Temperature and salinity as a joint distribution diagram.

(j) Tide gauge pressure and temperature data as a time series plot (1-hour intervals) and pressure, temperature again as a time series plot filtered and subsampled at 6-hour intervals.

The graphs and statistical diagrams for the current meters and tide gauges as described in steps (e) to (j) are ordered sequentially by cruise number, mooring site number and depth. Each set of diagrams (steps (e) to (j) repeated for an entire cruise) is preceded by a table (Tables 10 to 13) giving the accurate depth, sounding, latitude, longitude, instrument number and type, start and ending dates, and comments on each instrument.

The arrow on the progressive vector and stick diagrams represents the direction of true north. Meteorological data were resolved using an angle section of 0° and the current meter data were resolved using an angle section of 104° for sites C2 and C3, 90° for C7, 330° for C8, 180° for C9 and 114° for C10 [Angle of section represents the true direction of the V-axism in a right handed co-ordinate system eg. (U,V) are at (194°, 104°) at site C2]. Day numbers on all of the graphs are in Julian days. Stick and time series plots for the meteorological data are presented in 90 day segments and sea level time series plots are presented in 183 day segments. Current meter stick and time series plots, and tide gauge time series plots are presented in 216 day segments.

ACKNOWLEDGEMENTS

The author would like to thank the many people who assisted in the collection and processing of the data. Special thanks to Mrs. E. Rumley for her help with the statistical tables. The author would also like to thank Drs. Peter Smith and Carl Anderson for their advice and for reading the manuscript.

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TABLE 2 FIELD CALIBRATIONS FOR BROWNS BANK SALINITY MEASUREMENTS APRIL, 1983 TO MAY, 1985

SITE (DEPTH)	SUMMER (83-001)		WINTER (83-034)		SUMMER (84-008)		WINTER (84-043)	
	(ΔS ± σ)# START	(ΔS ± σ) END	(ΔS ± σ) START	(ΔS ± σ) END	(ΔS ± σ) START	(ΔS ± σ) END	(ΔS ± σ) START	(ΔS ± σ) END
C2	553		589		621		668	
(15)	0.0 ± .1	-1.7 ± .3	0.4 ± .3	0.1 ± .1	0.2 ± .05	0.1 ± .1	0.6 ± .3^{++}	0.0 ± .1^{++}
(50)	0.2 ± .1	-0.2 ± .3	0.3 ± .2	-0.3 ± .1	0.1 ± .1	0.2 ± .1	0.2 ± .1^{++}	0.2 ± .2^{++}
(100)	0.3 ± .1	-0.1 ± .2	-0.1 ± .1	-0.4 ± .05	-0.1 ± .07	-0.1 ± .1	NO CTD	0.1 ± .05^{++}
C3	554		590					
(15)	0.3 ± .2	-1.3 ± .3^{++}	NO COND.					
(30)			-0.4 ± .6	-0.2 ± .4				
(50)	0.1 ± .2	-1.1 ± .5^{++}	0.0 ± .6	-0.1 ± .3				
(100)	0.1 ± .1	SHORT	-0.2 ± .1	-0.3 ± .05				
C7			591					
(15)			0.1 ± .1	-0.1 ± .1				
(30)			-0.2 ± .2	-1.2 ± .1				
(50)			-0.1 ± .4	-0.2 ± .3				
(100)			0.0 ± .5	-0.6 ± .4				
C8			592					
(15)			0.0 ± .2	SHORT				
(30)			0.1 ± .3	-0.1 ± .1				
(50)			FAILED					
(100)			0.1 ± .2	-0.9 ± .3				
C9	555		593					
(15)	NO COND.		NO COND.					
(40)	0.1 ± .05	SHORT	0.1 ± .1	-0.1 ± .07*				
C10	556		594		622		667	
(15)	-0.1 ± .07	-4.8 ± .5**	-0.3 ± .6	-0.6 ± .2	-0.2 ± .2	1.0 ± .8	0.3 ± .2	0.2 ± .1
(30)	0.0 ± .05	-0.7 ± .5^{++}	0.2 ± .2	0.0 ± .07	-0.1 ± .05	0.0 ± .3	0.2 ± .2	0.4 ± .1
(60)	0.1 ± .05	-0.3 ± .3^{++}	0.2 ± .1	-0.2 ± .07	0.1 ± .1	0.2 ± .1	0.2 ± .1	0.3 ± .2

◯	significant offset exceeds 0.5°/••
++	timing questionable, may be different water mass
**	rapid drop in salinity approximately -5.0°/•• d 223 - d 309
*	environmental variability
#	WS = $S_{CM} - S_{CTD}$ where S_{CM} = Aanderaa salinity measurement; S_{CTD} = salinity at same depth from nearby CTD; σ = estimated error

TABLE 3

OVERALL STATISTICS FOR METEOROLOGICAL DATA

Instrument (Depth)	No. of Hourly Samples	U (m s⁻¹)*			V (m s⁻¹)*			BAROMETRIC PRESSURE (MBAR)			TAUX (PASCALS)			TAUY (PASCALS)			Time
		Mean	σ_1^+	σ_6^+	Mean	σ_1	σ_6	Mean	σ_1	σ_6	Mean	σ_1	σ_6	Mean	σ_1	σ_6	Span
Yarmouth	5136	0.785	3.568	3.122	0.720	4.008	3.616	1016	7.845	7.821	0.005	0.038	0.032	0.007	0.045	0.038	01/04/83 to 31/10/83
	5113	0.572	4.874	4.487	-0.791	4.732	4.420	1014	11.186	11.134	0.009	0.089	0.079	-0.010	0.073	0.064	01/11/83 to 31/05/84
	4393	1.546	3.023	2.680	0.255	3.616	3.313	1017	7.094	7.058	0.012	0.030	0.026	0.002	0.036	0.031	01/06/84 to 30/11/84
	4369	1.798	4.093	3.672	-1.536	4.502	4.143	1013	10.549	10.472	0.026	0.063	0.055	-0.022	0.066	0.059	01/12/84 to 31/05/85
Shearwater	5136	0.289	2.705	2.323	0.171	3.083	2.598	1015	7.890	7.850	-0.001	0.030	0.020	-0.000	0.034	0.022	01/04/83 to 31/10/83
	5113	0.348	3.552	3.250	-0.486	3.653	3.364	1014	11.569	11.513	-0.000	0.047	0.040	-0.004	0.048	0.041	01/11/83 to 31/05/84
	4393	1.136	2.542	2.236	0.175	2.933	2.556	1016	7.281	7.239	0.007	0.023	0.018	-0.001	0.024	0.020	01/06/84 to 30/11/84
	4369	1.794	3.898	3.535	-0.745	3.435	3.022	1012	11.101	11.009	0.020	0.059	0.049	-0.008	0.041	0.033	01/12/84 to 31/05/85
Sable Island	5136	0.410	4.163	3.837	0.781	4.319	4.059	1016	8.101	8.004	-0.000	0.067	0.057	0.001	0.068	0.060	01/04/83 to 31/10/83
	5113	0.709	6.407	6.084	-0.126	5.464	5.162	1014	11.716	11.647	0.013	0.143	0.125	-0.007	0.112	0.100	01/11/83 to 31/05/84
	4393	1.709	4.734	4.446	0.668	4.919	4.641	1016	7.436	7.396	0.[illegible]	0.084	0.075	-0.005	0.095	0.085	01/06/84 to 30/11/84
	4369	3.521	6.485	6.063	0.093	5.436	5.010	1011	11.440	11.341	0.073	0.167	0.150	-0.003	0.126	0.108	01/12/84 to 31/05/85

*(U,V)=(East, North) Components of Wind Velocity

+ (σ_1 σ_6) = Standard Deviations of 1-Hour and 6-Hour Data

TABLE 4

OVERALL STATISTICS FOR SEA LEVELS

SITE	NO. OF HOURLY SAMPLES	SEA LEVEL (cm)*			TIME SPAN
		MEAN	σ_1^+	σ_6^+	
HALIFAX	5136	128.6	48.35	9.02	01/04/83
SHELBURNE	5098	136.6	54.33	9.12	to
YARMOUTH	4044	255.9	120.52	9.87	31/10/83
CLARK'S HARBOUR	5136	188.7	78.86	8.91	
HALIFAX	5003	133.0	49.33	14.29	01/11/83
SHELBURNE	4640	140.5	55.47	15.77	to
YARMOUTH	3940	254.8	123.25	15.31	31/05/84
CLARK'S HARBOUR	5113	193.6	78.87	14.63	
HALIFAX	4393	129.5	48.18	9.86	01/06/84
SHELBURNE	4393	137.3	54.46	10.44	to
YARMOUTH	4072	252.1	121.37	10.54	30/11/84
CLARK'S HARBOUR	4393	189.6	77.93	10.36	
HALIFAX	4334	131.5	47.63	12.73	01/12/84
SHELBURNE	4128	138.3	54.77	12.93	to
YARMOUTH	4369	252.1	119.29	12.78	31/05/85
CLARK'S HARBOUR	4369	193.4	77.39	12.62	

* Sea Level = Displacement is measured relative to a record minimum.

+ σ_1, σ_6 = Standard deviations for 1-hour and 6-hour data.

TABLE 5

Overall Statistics for Current, Temperature, Salinity, and Density

Site (Mooring) (Depth)	No. of Hourly Samples	u(m s^{-1})*			v(m s^{-1})*			T(°C)			S(‰)			Sigma-T (kg m^{-3})			Time Span
		Mean	σ_1†	σ_6†	Mean	σ_1	σ_6	Mean	σ_1	σ_6	Mean	σ_1	σ_6	Mean	σ_1	σ_6	
C2(553, 016m)	5156							7.886	3.238	3.091	30.97	0.977	0.965	24.08	1.157	1.135	08/04/83 to 09/11/83
	3830	0.041	0.121	0.064	-0.011	0.418	0.083										08/04/83 to 15/09/83
C2(589, 015m)	4695	0.012	0.152	0.093	-0.067	0.481	0.157	4.306	2.572	2.484	31.82	0.468	0.455	25.19	0.483	0.452	09/11/83 to 23/05/84
C2(621, 010m)	4405	0.011	0.152	0.082	-0.010	0.439	0.090	10.08	2.247	2.118							26/05/84 to 25/11/84
	2620										32.34	0.488	0.466	25.00	0.369	0.332	26/05/84 to 12/09/84
	1425										31.34	0.745	0.720	23.84	0.587	0.534	27/09/84 to 25/11/84
C2(668, 013m)	4320	0.025	0.156	0.098	-0.060	0.478	0.124	4.047	2.228	2.185	31.89	0.308	0.293	25.28	0.329	0.319	25/11/84 to 24/05/85

*C2(u, v) Components Oriented at (194, 104) Degrees True.
†(σ_1, σ_6) = Standard Deviations for 1-Hour and 6-Hour Data.

TABLE 5 (Continued)

Site (Mooring) (Depth)	No. of Hourly Samples	u(m s^{-1})*			v(m s^{-1})*			T(°C)			S(‰)			Sigma-T (kg m^{-3})			Time Span
		Mean	σ_1†	σ_6†	Mean	σ_1	σ_6	Mean	σ_1	σ_6	Mean	σ_1	σ_6	Mean	σ_1	σ_6	
C2(553, 050m)	5156	0.053	0.136	0.048	-0.044	0.471	0.062	5.705	2.129	1.937	32.39	0.389	0.356	25.50	0.304	0.247	08/04/83 to 09/11/83
C2(589, 052m)	4695	0.025	0.116	0.061	-0.076	0.434	0.100	4.398	2.066	1.995	32.16	0.464	0.441	25.46	0.253	0.219	09/11/83 to 23/05/84
C2(621, 050m)	4405	0.038	0.111	0.045	-0.042	0.456	0.057	7.849	2.231	2.138	32.72	0.424	0.403	25.48	0.212	0.172	26/05/84 to 25/11/84
C2(668, 051m)	4320	0.014	0.095	0.048	-0.090	0.444	0.096	4.597	2.185	2.131	32.39	0.389	0.346	25.62	0.229	0.201	25/11/84 to 24/05/85
C2(553, 100m)	5156	-0.031	0.115	0.035	0.005	0.334	0.035	4.959	1.346	1.192	32.62	0.308	0.292	25.78	0.183	0.149	08/04/83 to 09/11/83
C2(589, 102m)	4695	-0.009	0.124	0.054	0.000	0.294	0.053	4.627	1.641	1.552	32.12	0.482	0.469	25.41	0.243	0.230	09/11/83 to 23/05/84
C2(621, 100m)	4405	-0.024	0.133	0.036	0.025	0.317	0.035	7.112	1.865	1.793	33.16	0.375	0.359	25.94	0.137	0.101	26/05/84 to 25/11/84
C2(668, 101m)	4320	0.011	0.139	0.061	0.015	0.327	0.057	5.482	2.043	2.021	32.74	0.416	0.395	25.81	0.160	0.142	25/11/84 to 24/05/85

*C2(u, v) Components Oriented at (194, 104) Degrees True.
†(σ_1, σ_6) = Standard Deviations for 1-Hour and 6-Hour Data.

TABLE 5 (Continued)

Site (Mooring) (Depth)	No. of Hourly Samples	u(m s-1)*			v(m s-1)*			T(°C)			S(‰)			Sigma-T (kg m-3)			Time Span
		Mean	σ_1†	σ_6†	Mean	σ_1	σ_6	Mean	σ_1	σ_6	Mean	σ_1	σ_6	Mean	σ_1	σ_6	
C3(554, 015m)	5085	0.051	0.175	0.087	0.080	0.417	0.091	7.739	2.750	2.595	31.67	0.658	0.619	24.66	0.800	0.755	08/04/83 to 06/11/83
C3(590, 006m)	3146	0.021	0.228	0.138	0.114	0.462	0.166	5.488	2.687	2.578							06/11/83 to 16/03/84
C3(590, 027m)	4821	0.043	0.218	0.099	0.103	0.453	0.150	5.122	2.493	2.415	31.78	0.534	0.501	25.07	0.540	0.512	06/11/83 to 25/05/84
C3(554, 050m)	5085	0.030	0.154	0.060	0.117	0.442	0.059	6.398	1.838	1.708	32.44	0.387	0.341	25.46	0.398	0.354	08/04/83 to 06/11/83
C3(390, 047m)	4821	0.043	0.206	0.087	0.127	0.454	0.130	5.387	2.196	2.132	32.19	0.470	0.420	25.37	0.379	0.342	06/11/83 to 25/05/84
C3(554, 100m)	178	-0.052	0.178	0.052	0.029	0.339	0.078	3.827	0.159	0.062	32.31	0.070	0.037	25.66	0.043	0.024	08/04/83 to 16/04/83
C3(590, 097m)	4821	-0.094	0.214	0.071	0.067	0.319	0.087	5.743	1.702	1.660	32.54	0.399	0.387	25.62	0.175	0.160	06/11/83 to 25/05/84

*C3(u, v) Components Oriented at (194, 104) Degrees True.

†(σ_1, σ_6) = Standard Deviations for 1-Hour and 6-Hour Data.

TABLE 5 (Continued)

Site (Mooring) (Depth)	No. of Hourly Samples	$u(m\ s^{-1})$*			$v(m\ s^{-1})$*			T(°C)			S(‰)			Sigma-T ($kg\ m^{-3}$)			Time Span
		Mean	σ_1†	σ_6†	Mean	σ_1	σ_6	Mean	σ_1	σ_6	Mean	σ_1	σ_6	Mean	σ_1	σ_6	
C7(591, 022m)	4877	0.058	0.282	0.100	0.224	0.503	0.148	5.493	2.278	2.221	32.08	0.358	0.334	25.28	0.395	0.372	04/11/83 to 25/05/84
C7(591, 035m)	514	0.080	0.290	0.076	0.120	0.496	0.139	9.774	4.329	3.152	31.85	0.466	0.362	24.53	0.395	0.293	04/11/83 to 25/11/83
	4107	0.067	0.277	0.088	0.212	0.447	0.122	4.839	1.508	1.493	31.97	0.324	0.288	25.28	0.193	0.159	06/12/83 to 25/05/84
C7(591, 055m)	4877	0.017	0.246	0.070	0.179	0.406	0.121	5.794	2.080	2.024	32.31	0.447	0.373	25.43	0.281	0.219	04/11/83 to 25/05/84
C7(591, 105m)	4877	-0.117	0.282	0.069	0.148	0.266	0.101	6.276	1.919	1.868	32.71	0.554	0.484	25.68	0.269	0.204	04/11/83 to 25/05/84
C8(592, 016m)	2458	-0.027	0.244	0.102	0.124	0.501	0.135	6.591	2.267	2.212	32.00	0.410	0.386	25.08	0.469	0.459	08/11/83 to 19/02/84
C8(592, 030m)	4748	-0.011	0.192	0.072	0.173	0.465	0.128	5.402	2.075	2.028	32.18	0.312	0.264	25.37	0.298	0.272	08/11/83 to 24/05/84
C8(592, 100m)	4748	-0.032	0.119	0.052	0.044	0.327	0.065	7.391	1.465	1.406	33.01	0.608	0.555	25.79	0.294	0.258	08/11/83 to 24/05/84

*C7(u, v) Components Oriented at (180, 90) Degrees True.
C8(u, v) Components Oriented at (60, 330) Degrees True.
†(σ_1, σ_6) = Standard Deviations for 1-Hour and 6-Hour Data.

TABLE 5 (Continued)

Site (Mooring) (Depth)	No. of Hourly Samples	u(m s⁻¹)*			v(m s⁻¹)*			T(°C)			S(‰)			Sigma-T (kg m⁻³)			Time Span
		Mean	σ_1†	σ_6†	Mean	σ_1	σ_6	Mean	σ_1	σ_6	Mean	σ_1	σ_6	Mean	σ_1	σ_6	
C9(555, 014m)	2089	0.016	0.446	0.051	-0.048	0.431	0.056	5.693	1.233	1.157							07/04/83 to 03/07/83
C9(593, 013m)	830	-0.021	0.492	0.130	-0.077	0.461	0.166										03/11/83 to 08/12/83
	4868							5.328	2.321	2.266							03/11/83 to 24/05/84
C9(555, 039m)	5034	0.045	0.398	0.047	-0.008	0.328	0.040	7.536	1.963	1.914							07/04/83 to 03/11/83
	3246										32.20	0.504	0.506	25.27	0.542	0.544	07/04/83 to 21/08/83
C9(593, 038m)	4873							5.488	2.161	2.134	32.28	0.297	0.279	25.43	0.214	0.201	03/11/83 to 24/05/84
	3188	0.028	0.397	0.089	-0.016	0.360	0.083										03/11/83 to 15/03/84
C10(556, 016m)	5102							8.022	2.457	2.369	31.38	1.492	1.396	24.40	1.444	1.367	07/04/83 to 06/11/83

*C9(u, v) Components Oriented at (270, 180) Degrees True
C10 (u, v) Components Oriented at (204, 114) Degrees True.
†(σ_1, σ_6) = Standard Deviations for 1-Hour and 6-Hour Data.

TABLE 5 (Continued)

Site (Mooring) (Depth)	No. of Hourly Samples	u(m s-1)*			v(m s-1)*			T(°C)			S(‰)			Sigma-T (kg m-3)			Time Span
		Mean	σ_1†	σ_6†	Mean	σ_1	σ_6	Mean	σ_1	σ_6	Mean	σ_1	σ_6	Mean	σ_1	σ_6	
C10(594, 016m)	4806	-0.005	0.292	0.124	0.100	0.597	0.179	5.342	2.313	2.254	31.67	0.420	0.398	24.97	0.454	0.438	06/11/83 to 24/05/84
C10(622, 014m)	4197							10.39	2.228	2.166	32.87	0.467	0.420	25.20	0.346	0.293	25/05/84 to 16/11/84
	3509	0.034	0.285	0.084	0.120	0.568	0.106										23/06/84 to 16/11/84
C10(677, 015m)	4530	0.026	0.276	0.107	0.135	0.558	0.142	5.589	2.389	2.329	32.59	0.443	0.420	25.66	0.259	0.237	16/11/84 to 25/05/85
C10(556, 032m)	5102	0.046	0.243	0.054	0.072	0.502	0.061	7.490	2.019	1.930	32.08	0.625	0.609	25.03	0.691	0.671	07/04/83 to 06/11/83
C10(594, 031m)	4801	-0.002	0.252	0.085	0.078	0.549	0.141	5.498	2.184	2.142	32.20	0.421	0.390	25.37	0.370	0.348	0706/11/83 to 24/05/84
C10(622, 028m)	4197	0.027	0.236	0.054	0.108	0.559	0.072	9.831	2.131	2.076	33.25	0.436	0.404	25.59	0.264	0.217	25/05/84 to 16/11/84
C10(667, 031m)	4530	-0.001	0.229	0.071	0.109	0.539	0.114	5.969	2.343	2.284	32.83	0.378	0.346	25.81	0.266	0.228	16/11/84 to 25/05/85

*C10(u, v) Components Oriented at (204, 114) Degrees True.
†(σ_1, σ_6) = Standard Deviations for 1-Hour and 6-Hour Data.

TABLE 5 (Continued)

Site (Mooring) (Depth)	No. of Hourly Samples	u(m s⁻¹)*			v(m s⁻¹)*			T(°C)			S(‰)			Sigma-T (kg m⁻³)			Time Span
		Mean	σ_1†	σ_6†	Mean	σ_1	σ_6	Mean	σ_1	σ_6	Mean	σ_1	σ_6	Mean	σ_1	σ_6	
C10(556, 062m)	5102							7.030	1.560	1.500	32.50	0.349	0.339	25.43	0.352	0.346	07/04/83 to 06/11/83
C10(594, 061m)	4806	-0.003	0.179	0.058	0.036	0.395	0.089	5.698	1.993	1.970	32.42	0.401	0.381	25.53	0.174	0.157	06/11/83 to 24/05/84
C10(622, 058m)	4197	-0.020	0.164	0.034	0.060	0.406	0.058	9.449	1.902	1.860	33.45	0.420	0.399	25.82	0.177	0.145	25/05/84 to 16/11/84
C10(667, 061m)	4530							6.297	2.311	2.276	32.97	0.440	0.428	25.88	0.229	0.212	16/11/84 to 24/05/85
	102	-0.048	0.212	0.027	0.082	0.379	0.023										16/11/84 to 20/11/84

*C10(u, v) Components Oriented at (204, 114) Degrees True.
†(σ_1, σ_6) = Standard Deviations for 1-Hour and 6-Hour Data.

TABLE 6

OVERALL STATISTICS FOR TIDE GAUGES

SITE (MOORING) (DEPTH)	NO. OF HOURLY SAMPLES	P(MBAR)*			T(^oC)			TIME SPAN
		MEAN	σ_1	σ_6	MEAN	σ_1	σ_6	
C2(553,115 m)	5159	133.7	62.65	6.48	5.05	1.32	1.18	08/04/83 to 09/11/83
C2(589,110 m)	4694	141.4	62.04	9.75	4.67	1.59	1.50	09/11/83 to 23/05/84
C2(621,112 m)	4406	134.3	60.94	7.01				26/05/84 to 25/11/84
C2(668,111 m)	4320	157.8	91.24	20.36	5.47	2.04	2.02	25/11/84 to 25/05/85

* P is measured with respect to an arbitrary low water datum.

TABLE 7

GENERAL TIDAL ANALYSIS FOR CURRENTS, TEMPERATURE, SALINITY, DENSITY ANOMALY

SITE (MOORING) (DEPTH)	CONSTITUENT	159.6 DAYS CENTERED AT DAY 178, 1983*									
		CURRENT ELLIPSE				TEMPERATURE		SALINITY		DENSITY ANOMALY	
		MAJ. (M/S)	MIN. (M/S)	ORIEN. (DEG.T)	PHASE SENSE	AMP. (DEG. CEL.)	PHASE (GMT)	AMP. (P.P.T.)	PHASE (GMT)	AMP. (KG/M**3)	PHASE (GMT)
C2 (553,016M)	K1	.064	.013	93	336/C	.010	63	.008	18	.007	359
	O1	.073	.026	95	292/C	.046	116	.013	336	.017	319
	M2	.529	.020	105	175/A	.247	11	.039	225	.071	205
	S2	.123	.005	99	215/C	.135	173	.015	12	.030	2
	N2	.124	.014	109	145/C	.061	262	.016	225	.007	193
	MF	.022	.002	63	11/A	.088	230	.002	102	.014	59
	M4	.015	.004	139	261/C	.086	141	.010	315	.020	314
	MS4	.004	.000	136	268/A	.037	171	.003	356	.008	346

		214.8 DAYS CENTERED AT DAY 206, 1983									
C2 (553,050M)	K1	.062	.008	90	332/C	.106	74	.010	342	.015	288
	O1	.071	.009	94	298/C	.140	39	.015	320	.019	258
	M2	.629	.097	114	171/C	.619	261	.028	86	.099	82
	S2	.119	.008	113	190/C	.093	251	.004	25	.015	60
	N2	.140	.005	117	134/C	.136	220	.005	50	.023	45
	MF	.005	.000	63	12/A	.010	259	.012	317	.007	326
	M4	.020	.001	132	95/A	.042	79	.007	294	.011	280
	MS4	.010	.003	117	123/C	.007	165	.007	214	.005	224

		214.8 DAYS CENTERED AT DAY 206, 1983									
C2 (553,100M)	K1	.046	.002	236	147/A	.040	73	.019	64	.011	60
	O1	.051	.003	233	114/C	.056	61	.022	28	.014	13
	M2	.450	.064	116	146/A	.410	232	.066	38	.102	44
	S2	.088	.013	120	167/A	.059	245	.011	108	.016	86
	N2	.093	.020	110	120/A	.118	186	.007	331	.019	355
	MF	.005	.001	118	76/C	.050	91	.013	262	.017	263
	M4	.014	.002	190	327/A	.094	95	.004	331	.014	286
	MS4	.004	.000	156	27/A	.025	129	.002	44	.003	330

*TEMPERATURE, SALINITY, DENSITY ANOMALY FOR C2(553,016M) 214.8 DAYS CENTERED AT DAY 206, 1983

TABLE 7 - CONTINUED

SITE (MOORING) (DEPTH)	CONSTITUENT	211.9 DAYS CENTERED AT DAY 204, 1983									
		CURRENT ELLIPSE				TEMPERATURE		SALINITY		DENSITY ANOMALY	
		MAJ. (M/S)	MIN. (M/S)	ORIEN. (DEG.T)	PHASE SENSE	AMP. (DEG. CEL.)	PHASE (GMT)	AMP. (P.P.T.)	PHASE (GMT)	AMP. (KG/M**3)	PHASE (GMT)
C3 (554,015M)	K1	.044	.007	88	338/C	.021	1	.015	61	.011	73
	O1	.052	.017	92	303/C	.038	8	.020	42	.012	56
	M2	.545	.092	118	178/C	.355	344	.120	219	.132	201
	S2	.103	.010	117	204/C	.032	330	.020	229	.020	206
	N2	.127	.023	115	153/C	.097	5	.029	198	.037	192
	MF	.017	.003	183	237/C	.045	160	.081	107	.064	105
	M4	.033	.016	129	110/C	.073	163	.019	359	.027	353
	MS4	.010	.002	117	145/C	.052	199	.003	69	.009	33

		211.9 DAYS CENTERED AT DAY 204, 1983									
C3 (554,050M)	K1	.047	.015	80	335/C	.090	69	.008	146	.012	217
	O1	.055	.024	88	309/C	.105	14	.006	102	.014	171
	M2	.595	.114	116	175/C	.214	291	.140	207	.116	193
	S2	.116	.010	118	199/C	.036	141	.014	193	.010	216
	N2	.136	.020	117	140/C	.096	343	.024	164	.030	162
	MF	.010	.005	94	264/C	.196	57	.012	114	.024	208
	M4	.018	.015	92	243/C	.054	298	.012	323	.004	359
	MS4	.008	.004	91	280/C	.024	291	.012	334	.007	352

		87.0 DAYS CENTERED AT DAY 141, 1983									
C9 (555,014M)	K1	.055	.015	250	192/C	.016	92				
	O1	.054	.023	267	137/C	.012	127				
	M2	.787	.286	314	350/C	.044	247				
	S2	.132	.037	136	210/C	.041	260				
	N2	.136	.042	140	143/C	.041	130				
	MF	.017	.005	159	211/C	.087	206				
	M4	.026	.012	251	46/C	.014	255				
	MS4	.013	.009	285	112/C	.006	341				

TABLE 7 - CONTINUED

SITE (MOORING) (DEPTH)	CONSTITUENT	209.8 DAYS CENTERED AT DAY 202, 1983*									
		CURRENT ELLIPSE				TEMPERATURE		SALINITY		DENSITY ANOMALY	
		MAJ. (M/S)	MIN. (M/S)	ORIEN. (DEG. T)	PHASE SENSE	AMP. (DEG. CEL.)	PHASE (GMT)	AMP. (P.P.T.)	PHASE (GMT)	AMP. (KG/M**3)	PHASE (GMT)
C9 (555,039M)	K1	.048	.009	240	176/C	.010	59	.010	234	.008	233
	O1	.056	.019	251	138/C	.008	338	.012	157	.010	154
	M2	.658	.198	308	346/C	.104	226	.033	328	.028	345
	S2	.123	.030	309	11/C	.040	219	.014	339	.013	8
	N2	.140	.040	311	316/C	.025	118	.002	236	.004	274
	MF	.014	.007	142	221/A	.029	139	.057	220	.036	216
	M4	.015	.003	209	334/A	.025	64	.015	275	.014	270
	MS4	.004	.002	237	27/C	.004	43	.006	276	.005	272

		212.6 DAYS CENTERED AT DAY 204, 1983									
C10 (556,016M)	K1					.043	45	.010	151	.011	182
	O1					.062	355	.005	329	.005	189
	M2					.034	131	.083	263	.072	266
	S2					.069	82	.027	286	.031	279
	N2					.090	50	.015	236	.026	232
	MF					.090	155	.090	161	.058	161
	M4					.097	293	.015	127	.025	117
	MS4					.014	24	.003	156	.005	173

		212.6 DAYS CENTERED AT DAY 204, 1983									
C10 (556,032M)	K1	.051	.018	72	351/C	.044	61	.002	206	.008	232
	O1	.063	.026	89	321/C	.058	20	.011	264	.014	233
	M2	.706	.196	134	179/C	.065	164	.066	286	.060	293
	S2	.136	.029	136	195/C	.042	94	.026	279	.027	278
	N2	.152	.036	134	145/C	.046	99	.010	225	.013	249
	MF	.009	.002	158	236/A	.079	158	.017	211	.011	259
	M4	.028	.012	213	7/C	.119	303	.039	125	.048	123
	MS4	.006	.004	246	74/C	.032	10	.006	171	.010	181

*SALINITY, DENSITY ANOMALY FOR C9(555,039M) 135.3 DAYS CENTERED AT DAY 165, 1983

TABLE 7 - CONTINUED

SITE (MOORING) (DEPTH)	CONSTITUENT	212.6 DAYS CENTERED AT DAY 204, 1983									
		CURRENT ELLIPSE				TEMPERATURE		SALINITY		DENSITY ANOMALY	
		MAJ. (M/S)	MIN. (M/S)	ORIEN. (DEG.T)	PHASE SENSE	AMP. (DEG. CEL.)	PHASE (GMT)	AMP. (P.P.T.)	PHASE (GMT)	AMP. (KG/M**3)	PHASE (GMT)
C10 (556,062M)	K1					.040	76	.007	258	.011	257
	O1					.042	28	.009	188	.013	198
	M2					.068	151	.080	278	.070	284
	S2					.013	161	.014	242	.011	253
	N2					.036	99	.024	249	.024	253
	MF					.033	94	.016	345	.014	325
	M4					.039	336	.021	165	.022	162
	MS4					.010	31	.007	135	.006	148

		195.6 DAYS CENTERED AT DAY 46, 1984									
C2 (589,015M)	K1	.081	.015	89	323/C	.016	16	.007	101	.005	120
	O1	.073	.014	90	298/C	.018	40	.012	66	.008	74
	M2	.601	.029	106	173/C	.038	277	.029	284	.018	286
	S2	.093	.001	103	196/C	.003	196	.004	89	.003	86
	N2	.128	.005	103	145/C	.012	169	.008	280	.007	290
	MF	.018	.009	88	201/A	.029	207	.079	65	.065	64
	M4	.015	.007	131	248/C	.005	354	.005	356	.004	353
	MS4	.008	.006	127	309/C	.001	101	.005	26	.004	24

		195.6 DAYS CENTERED AT DAY 46, 1984									
C2 (589,052M)	K1	.070	.001	83	329/C	.031	43	.015	30	.008	23
	O1	.068	.004	84	305/C	.026	35	.010	344	.006	323
	M2	.566	.058	111	169/C	.104	294	.075	32	.068	44
	S2	.095	.008	108	192/C	.013	290	.013	103	.013	101
	N2	.129	.010	109	138/C	.038	359	.023	5	.015	8
	MF	.018	.001	124	113/C	.102	164	.038	108	.025	85
	M4	.020	.005	131	96/C	.045	98	.024	137	.016	147
	MS4	.009	.004	121	144/C	.018	138	.011	159	.008	164

TABLE 7 - CONTINUED

SITE (MOORING) (DEPTH)	CONSTITUENT	195.6 DAYS CENTERED AT DAY 46, 1984									
		CURRENT ELLIPSE				TEMPERATURE		SALINITY		DENSITY ANOMALY	
		MAJ. (M/S)	MIN. (M/S)	ORIEN. (DEG.T)	PHASE SENSE	AMP. (DEG. CEL.)	PHASE (GMT)	AMP. (P.P.T.)	PHASE (GMT)	AMP. (KG/M**3)	PHASE (GMT)
C2 (589,102M)	K1	.046	.009	228	149/A	.049	91	.030	71	.020	65
	O1	.045	.001	238	119/A	.051	34	.028	32	.017	31
	M2	.389	.068	117	146/A	.045	319	.109	36	.091	39
	S2	.065	.013	119	165/A	.033	135	.016	67	.012	49
	N2	.096	.017	118	112/A	.057	352	.033	18	.021	25
	MF	.013	.003	63	102/A	.155	189	.033	150	.016	108
	M4	.016	.002	144	326/A	.021	56	.008	343	.007	322
	MS4	.007	.002	113	5/A	.015	75	.005	19	.003	353

		131.1 DAYS CENTERED AT DAY 11, 1984									
C3 (590,006M)	K1	.049	.010	85	358/C	.033	64				
	O1	.053	.014	79	306/C	.020	56				
	M2	.588	.107	118	173/C	.127	215				
	S2	.116	.013	120	203/C	.061	236				
	N2	.148	.030	120	143/C	.037	198				
	MF	.037	.014	69	348/C	.155	92				
	M4	.034	.013	139	99/C	.031	10				
	MS4	.014	.006	144	120/C	.028	95				

		200.9 DAYS CENTERED AT DAY 46, 1984									
C3 (590,027M)	K1	.054	.010	86	341/C	.010	121	.013	69	.010	65
	O1	.060	.019	93	315/C	.032	27	.013	36	.007	41
	M2	.607	.109	125	177/C	.200	217	.131	212	.084	211
	S2	.093	.016	125	202/C	.032	268	.028	262	.019	259
	N2	.137	.026	123	147/C	.058	180	.032	182	.020	182
	MF	.027	.009	148	110/C	.043	123	.062	71	.047	64
	M4	.020	.006	129	118/C	.039	20	.023	22	.014	22
	MS4	.009	.004	142	122/C	.016	69	.017	58	.012	56

TABLE 7 - CONTINUED

SITE (MOORING) (DEPTH)	CONSTITUENT	200.9 DAYS CENTERED AT DAY 46, 1984									
		CURRENT ELLIPSE				TEMPERATURE		SALINITY		DENSITY ANOMALY	
		MAJ. (M/S)	MIN. (M/S)	ORIEN. (DEG.T)	PHASE SENSE	AMP. (DEG. CEL.)	PHASE (GMT)	AMP. (P.P.T.)	PHASE (GMT)	AMP. (KG/M**3)	PHASE (GMT)
C3 (590,047M)	K1	.060	.014	81	336/C	.011	90	.003	230	.004	241
	O1	.058	.023	95	318/C	.027	59	.007	78	.003	101
	M2	.618	.118	124	177/C	.233	221	.177	198	.120	193
	S2	.097	.018	124	198/C	.011	38	.014	214	.013	212
	N2	.137	.023	119	148/C	.029	106	.030	185	.024	193
	MF	.021	.007	134	116/C	.023	39	.036	66	.026	66
	M4	.008	.001	89	226/C	.055	45	.028	16	.018	5
	MS4	.002	.001	139	116/C	.029	66	.027	60	.019	59
		200.9 DAYS CENTERED AT DAY 46, 1984									
C3 (590,097M)	K1	.045	.002	63	337/A	.015	26	.008	238	.008	229
	O1	.044	.005	68	318/C	.012	100	.010	197	.008	209
	M2	.476	.049	135	157/C	.053	253	.082	238	.060	236
	S2	.074	.008	133	179/C	.040	85	.002	325	.006	279
	N2	.107	.013	132	127/C	.006	306	.011	255	.008	254
	MF	.011	.007	157	163/C	.070	346	.025	344	.011	333
	M4	.021	.005	224	12/C	.014	123	.015	43	.012	35
	MS4	.006	.004	112	298/C	.010	189	.004	106	.004	86
		203.2 DAYS CENTERED AT DAY 45, 1984									
C7 (591,022M)	K1	.045	.007	92	344/C	.009	314	.003	203	.002	181
	O1	.057	.018	93	322/C	.008	118	.007	102	.005	101
	M2	.703	.195	114	183/C	.065	242	.063	228	.044	225
	S2	.105	.025	117	202/C	.018	21	.008	225	.009	220
	N2	.148	.038	114	149/C	.005	350	.010	179	.008	174
	MF	.018	.001	72	348/C	.090	325	.049	327	.029	328
	M4	.027	.009	212	340/A	.003	154	.004	175	.003	174
	MS4	.014	.002	201	0/C	.007	129	.002	183	.001	226

TABLE 7 - CONTINUED

SITE (MOORING) (DEPTH)	CONSTITUENT	203.2 DAYS CENTERED AT DAY 45, 1984									
		CURRENT ELLIPSE				TEMPERATURE		SALINITY		DENSITY ANOMALY	
		MAJ. (M/S)	MIN. (M/S)	ORIEN. (DEG.T)	PHASE SENSE	AMP. (DEG. C.)	PHASE (GMT)	AMP. (P.P.T.)	PHASE (GMT)	AMP. (KG/M**3)	PHASE (GMT)
C7 (591,035M)	K1	.047	.006	93	347/C	.015	306	.009	243	.006	221
	O1	.057	.018	94	323/C	.015	130	.008	121	.003	130
	M2	.651	.164	118	181/C	.129	237	.113	225	.075	223
	S2	.106	.026	122	200/C	.030	4	.010	230	.011	223
	N2	.132	.032	118	150/C	.022	265	.020	228	.013	227
	MF	.018	.003	219	178/A	.081	320	.028	341	.015	347
	M4	.035	.000	211	354/A	.012	115	.004	116	.001	134
	MS4	.013	.003	207	19/C	.009	105	.003	109	.001	140

		203.2 DAYS CENTERED AT DAY 45, 1984									
C7 (591,055M)	K1	.049	.008	85	347/C	.016	281	.019	238	.013	235
	O1	.054	.015	92	324/C	.018	151	.011	165	.007	171
	M2	.586	.112	120	173/C	.290	228	.244	220	.162	218
	S2	.091	.019	122	192/C	.033	20	.011	228	.012	217
	N2	.135	.027	121	141/C	.056	226	.040	217	.025	215
	MF	.016	.002	201	192/A	.071	278	.024	322	.015	343
	M4	.032	.014	222	354/C	.026	91	.014	48	.009	33
	MS4	.010	.007	201	346/C	.010	90	.004	77	.002	64

		203.2 DAYS CENTERED AT DAY 45, 1984									
C7 (591,105M)	K1	.032	.005	81	336/C	.009	174	.014	195	.010	198
	O1	.033	.003	95	331/C	.026	114	.015	116	.009	117
	M2	.463	.036	137	158/A	.395	223	.290	214	.183	211
	S2	.075	.005	135	183/A	.021	16	.014	348	.009	336
	N2	.113	.004	135	137/A	.071	213	.045	230	.027	237
	MF	.017	.005	53	164/C	.144	226	.035	231	.014	242
	M4	.042	.008	166	179/C	.056	317	.040	303	.025	298
	MS4	.009	.002	179	147/A	.018	1	.011	356	.007	355

TABLE 7 - CONTINUED

SITE (MOORING) (DEPTH)	CONSTITUENT	102.4 DAYS CENTERED AT DAY 363, 1983									
		CURRENT ELLIPSE				TEMPERATURE		SALINITY		DENSITY ANOMALY	
		MAJ. (M/S)	MIN. (M/S)	ORIEN. (DEG.T)	PHASE SENSE	AMP. (DEG. CEL.)	PHASE (GMT)	AMP. (P.P.T.)	PHASE (GMT)	AMP. (KG/M**3)	PHASE (GMT)
C8 (592,016M)	K1	.030	.010	70	11/A	.011	112	.012	149	.009	153
	O1	.031	.003	78	329/A	.021	82	.013	37	.009	26
	M2	.667	.208	316	9/C	.027	259	.067	273	.050	273
	S2	.132	.033	318	46/C	.039	230	.021	267	.014	284
	N2	.131	.030	322	335/C	.035	218	.026	183	.017	172
	MF	.031	.020	344	227/C	.082	329	.097	12	.069	20
	M4	.025	.005	55	160/C	.011	7	.014	305	.010	299
	MS4	.010	.009	61	222/C	.005	184	.004	246	.003	257

		197.8 DAYS CENTERED AT DAY 46, 1984									
C8 (592,030M)	K1	.031	.009	53	13/A	.035	125	.016	109	.009	101
	O1	.031	.000	87	332/A	.031	74	.011	71	.005	67
	M2	.617	.171	317	8/C	.071	242	.069	247	.047	248
	S2	.097	.023	319	30/C	.005	150	.004	273	.004	287
	N2	.142	.037	321	336/C	.033	230	.007	210	.003	169
	MF	.008	.001	343	312/A	.092	181	.037	91	.033	79
	M4	.014	.005	62	187/C	.023	349	.033	297	.025	292
	MS4	.006	.002	63	251/C	.008	31	.007	334	.005	330

		197.8 DAYS CENTERED AT DAY 46, 1984									
C8 (592,100M)	K1	.030	.006	343	68/A	.065	221	.035	218	.019	218
	O1	.020	.009	14	26/A	.066	177	.034	175	.018	174
	M2	.429	.004	334	339/C	.297	76	.167	67	.090	64
	S2	.067	.006	337	5/C	.075	109	.037	101	.019	95
	N2	.086	.003	328	314/A	.066	31	.025	12	.012	356
	MF	.013	.008	317	296/C	.127	181	.038	140	.022	111
	M4	.021	.008	98	26/C	.045	82	.026	66	.014	58
	MS4	.006	.000	98	75/C	.007	50	.005	59	.003	60

TABLE 7 - CONTINUED

SITE (MOORING) (DEPTH)	CONSTITUENT	34.6 DAYS CENTERED AT DAY 325, 1983*									
		CURRENT ELLIPSE				TEMPERATURE		SALINITY		DENSITY ANOMALY	
		MAJ. (M/S)	MIN. (M/S)	ORIEN. (DEG.T)	PHASE SENSE	AMP. (DEG. CEL.)	PHASE (GMT)	AMP. (P.P.T.)	PHASE (GMT)	AMP. (KG/M**3)	PHASE (GMT)
C9 (593,013M)	K1	.070	.038	269	184/C	.010	251				
	O1	.047	.021	267	154/C	.030	133				
	M2	.774	.291	311	355/C	.062	256				
	S2	.119	.022	313	19/C	.019	283				
	N2	.120	.039	312	310/C	.029	230				
	MF	.050	.012	296	50/A	.060	273				
	M4	.013	.006	251	63/C	.007	274				
	MS4	.005	.002	158	66/A	.005	169				

		132.8 DAYS CENTERED AT DAY 9, 1984*									
C9 (593,038M)	K1	.040	.004	239	191/C	.019	243	.012	208	.008	198
	O1	.054	.011	250	143/C	.024	143	.012	147	.007	151
	M2	.673	.209	312	346/C	.085	305	.052	334	.033	343
	S2	.137	.035	311	21/C	.006	280	.012	349	.010	352
	N2	.141	.044	310	322/C	.024	321	.017	260	.013	249
	MF	.011	.007	151	250/A	.095	223	.016	319	.018	357
	M4	.014	.001	208	331/C	.015	234	.014	236	.010	236
	MS4	.005	.005	297	118/C	.005	268	.007	271	.005	270

		200.3 DAYS CENTERED AT DAY 45, 1984									
C10 (594,016M)	K1	.065	.016	73	348/C	.023	27	.007	45	.004	61
	O1	.070	.037	88	325/C	.009	356	.006	59	.005	71
	M2	.793	.264	130	182/C	.126	273	.091	276	.060	276
	S2	.131	.035	131	201/C	.017	260	.008	262	.005	262
	N2	.188	.056	131	150/C	.031	218	.022	188	.015	181
	MF	.019	.005	217	122/A	.104	275	.051	353	.041	9
	M4	.013	.001	71	177/A	.010	52	.014	73	.010	73
	MS4	.009	.002	230	85/C	.005	200	.007	155	.005	150

*TEMPERATURE FOR C9(593,013M) 202.8 DAYS CENTERED AT DAY 44, 1984

*TEMPERATURE, SALINITY, DENSITY ANOMALY FOR C9(593,038M) 203.0 DAYS CENTERED AT DAY 44, 1984

TABLE 7 - CONTINUED

SITE (MOORING) (DEPTH)	CONSTITUENT	200.0 DAYS CENTERED AT DAY 45, 1984									
		CURRENT ELLIPSE				TEMPERATURE		SALINITY		DENSITY ANOMALY	
		MAJ. (M/S)	MIN. (M/S)	ORIEN. (DEG.T)	PHASE SENSE	AMP. (DEG. CEL.)	PHASE (GMT)	AMP. (P.P.T.)	PHASE (GMT)	AMP. (KG/M**3)	PHASE (GMT)
C10 (594,031M)	K1	.060	.014	79	350/C	.009	4	.008	124	.007	131
	O1	.069	.028	84	324/C	.007	99	.014	132	.011	135
	M2	.746	.222	131	178/C	.128	270	.097	277	.063	279
	S2	.124	.027	132	194/C	.013	154	.014	194	.010	200
	N2	.169	.041	131	146/C	.020	262	.018	220	.012	211
	MF	.016	.007	198	142/A	.111	268	.040	336	.030	359
	M4	.017	.005	230	24/C	.027	134	.033	109	.024	105
	MS4	.008	.003	76	259/C	.008	250	.009	98	.008	95

		200.3 DAYS CENTERED AT DAY 45, 1984									
C10 (594,061M)	K1	.040	.002	247	166/C	.004	206	.011	211	.008	209
	O1	.047	.010	74	324/C	.019	147	.013	183	.009	192
	M2	.548	.102	134	165/C	.132	275	.091	279	.057	281
	S2	.085	.009	132	191/C	.013	174	.007	273	.006	290
	N2	.127	.025	136	137/C	.021	283	.018	254	.011	247
	MF	.008	.002	223	84/A	.112	230	.016	244	.004	323
	M4	.015	.003	113	166/A	.028	163	.026	152	.018	149
	MS4	.005	.001	112	210/C	.011	219	.007	192	.005	186

		183.5 DAYS CENTERED AT DAY 238, 1984*									
C2 (621,010M)	K1	.091	.014	92	318/C	.050	38	.021	76	.007	112
	O1	.069	.016	97	293/C	.042	26	.022	28	.006	17
	M2	.558	.003	102	176/C	.082	159	.082	282	.059	299
	S2	.068	.003	94	205/A	.085	121	.013	308	.036	297
	N2	.135	.008	103	152/C	.042	224	.031	221	.009	199
	MF	.021	.002	227	286/C	.194	259	.007	255	.024	77
	M4	.021	.012	77	183/C	.078	181	.013	358	.026	5
	MS4	.010	.005	119	245/C	.031	191	.005	286	.011	331

*SALINITY, DENSITY ANOMALY FOR C2(621,010M) 109.2 DAYS CENTERED AT DAY 201, 1984

TABLE 7 - CONTINUED

SITE (MOORING) (DEPTH)	CONSTITUENT	183.5 DAYS CENTERED AT DAY 238, 1984									
		CURRENT ELLIPSE				TEMPERATURE		SALINITY		DENSITY ANOMALY	
		MAJ. (M/S)	MIN. (M/S)	ORIEN. (DEG.T)	PHASE SENSE	AMP. (DEG. CEL.)	PHASE (GMT)	AMP. (P.P.T.)	PHASE (GMT)	AMP. (KG/M**3)	PHASE (GMT)
C2 (621,050M)	K1	.086	.008	79	330/C	.114	70	.015	13	.013	294
	O1	.068	.008	83	300/C	.119	35	.008	5	.012	231
	M2	.610	.080	109	171/C	.619	249	.035	282	.067	56
	S2	.080	.012	112	191/C	.101	324	.005	355	.011	129
	N2	.142	.009	114	141/C	.111	233	.018	349	.026	25
	MF	.018	.004	67	40/A	.081	81	.035	106	.018	132
	M4	.033	.010	142	91/C	.044	105	.010	200	.011	236
	MS4	.012	.005	150	115/C	.007	269	.010	262	.007	262
		183.5 DAYS CENTERED AT DAY 238, 1984									
C2 (621,100M)	K1	.060	.006	232	152/C	.029	131	.026	65	.020	54
	O1	.046	.009	60	305/C	.017	62	.020	21	.015	14
	M2	.440	.069	121	149/A	.496	230	.027	3	.090	40
	S2	.055	.010	122	171/A	.077	276	.005	247	.008	105
	N2	.101	.019	117	123/A	.114	207	.014	20	.027	24
	MF	.011	.001	75	50/A	.080	68	.006	54	.006	231
	M4	.015	.005	160	320/C	.082	84	.003	358	.012	276
	MS4	.006	.001	141	16/C	.022	168	.003	220	.003	304
		146.2 DAYS CENTERED AT DAY 248, 1984*									
C10 (622,014M)	K1	.073	.027	73	342/C	.040	10	.012	87	.011	122
	O1	.066	.040	95	316/C	.034	8	.017	54	.011	76
	M2	.785	.261	132	185/C	.112	125	.103	270	.097	277
	S2	.104	.026	131	218/C	.009	100	.031	276	.026	275
	N2	.207	.064	132	162/C	.018	66	.024	265	.022	262
	MF	.038	.010	148	322/A	.117	154	.085	17	.085	7
	M4	.019	.007	82	164/C	.061	289	.018	46	.021	67
	MS4	.008	.003	183	81/A	.044	11	.005	171	.011	185

*TEMPERATURE, SALINITY, DENSITY ANOMALY FOR C10(622,014M) 174.9 DAYS CENTERED AT DAY 234, 1984

TABLE 7 - CONTINUED

SITE (MOORING) (DEPTH)	CONSTITUENT	174.9 DAYS CENTERED AT DAY 234, 1984									
		CURRENT ELLIPSE				TEMPERATURE		SALINITY		DENSITY ANOMALY	
		MAJ. (M/S)	MIN. (M/S)	ORIEN. (DEG.T)	PHASE SENSE	AMP. (DEG. CEL.)	PHASE (GMT)	AMP. (P.P.T.)	PHASE (GMT)	AMP. (KG/M**3)	PHASE (GMT)
C10 (622,028M)	K1	.067	.024	73	353/C	.040	40	.009	202	.013	210
	01	.069	.034	87	324/C	.057	36	.008	196	.016	208
	M2	.785	.217	130	181/C	.090	150	.084	279	.077	287
	S2	.101	.014	129	196/C	.019	74	.015	287	.014	279
	N2	.180	.038	130	153/C	.027	359	.014	258	.013	238
	MF	.016	.010	93	339/A	.048	141	.049	24	.044	13
	M4	.022	.011	209	22/C	.101	302	.034	98	.042	106
	MS4	.003	.001	80	293/C	.035	359	.015	191	.017	187

		174.9 DAYS CENTERED AT DAY 234, 1984									
C10 (622,058M)	K1	.055	.015	74	350/C	.024	69	.010	235	.011	241
	01	.049	.018	84	328/C	.036	31	.009	175	.012	191
	M2	.580	.095	133	165/C	.078	126	.108	275	.097	278
	S2	.078	.007	134	186/C	.003	154	.016	293	.013	294
	N2	.129	.016	133	139/C	.019	27	.018	240	.017	235
	MF	.007	.002	92	296/A	.080	64	.017	61	.002	310
	M4	.014	.011	196	97/A	.060	335	.027	157	.031	156
	MS4	.005	.000	138	229/C	.011	358	.006	153	.006	160

		180.0 DAYS CENTERED AT DAY 54, 1985									
C2 (668,013M)	K1	.091	.020	87	319/C	.020	27	.016	70	.012	78
	01	.077	.016	92	295/C	.013	340	.010	5	.007	10
	M2	.622	.035	105	172/C	.060	255	.048	281	.033	286
	S2	.083	.003	110	193/A	.015	255	.002	114	.003	95
	N2	.143	.002	104	147/C	.037	324	.011	59	.009	81
	MF	.023	.004	123	230/C	.043	267	.050	261	.033	262
	M4	.020	.013	142	263/C	.007	177	.003	353	.003	357
	MS4	.005	.002	144	287/C	.009	287	.004	27	.003	40

TABLE 7 - CONTINUED

SITE (MOORING) (DEPTH)	CONSTITUENT	180.0 DAYS CENTERED AT DAY 54, 1985									
		CURRENT ELLIPSE				TEMPERATURE		SALINITY		DENSITY ANOMALY	
		MAJ. (M/S)	MIN. (M/S)	ORIEN. (DEG.T)	PHASE SENSE	AMP. (DEG. CEL.)	PHASE (GMT)	AMP. (P.P.T.)	PHASE (GMT)	AMP. (KG/M**3)	PHASE (GMT)
C2 (668,051M)	K1	.081	.006	83	329/C	.045	45	.018	46	.010	47
	O1	.073	.007	87	303/C	.026	338	.003	323	.001	217
	M2	.590	.065	107	169/C	.240	338	.129	350	.079	355
	S2	.088	.006	107	196/C	.026	123	.016	97	.010	90
	N2	.134	.006	111	144/C	.077	14	.043	9	.028	6
	MF	.019	.003	100	249/C	.074	356	.043	333	.024	327
	M4	.022	.005	130	111/C	.042	86	.019	44	.012	34
	MS4	.007	.001	100	153/C	.011	140	.006	109	.004	92
		180.0 DAYS CENTERED AT DAY 54, 1985									
C2 (668,101M)	K1	.061	.001	235	153/C	.093	58	.040	58	.021	59
	O1	.051	.004	66	303/C	.082	28	.032	26	.016	25
	M2	.459	.060	120	147/A	.244	30	.132	35	.079	37
	S2	.065	.014	116	173/A	.047	66	.018	61	.009	53
	N2	.094	.011	117	125/A	.123	12	.040	12	.018	11
	MF	.014	.002	202	99/A	.153	33	.067	37	.032	41
	M4	.021	.005	144	314/C	.014	305	.013	288	.009	285
	MS4	.005	.002	136	343/C	.007	359	.004	337	.003	328
		188.8 DAYS CENTERED AT DAY 50, 1985									
C10 (667,015M)	K1	.065	.021	78	346/C	.018	50	.007	78	.004	93
	O1	.062	.030	94	323/C	.009	245	.009	307	.007	316
	M2	.768	.247	132	182/C	.151	263	.078	263	.045	262
	S2	.112	.021	135	204/C	.023	287	.010	322	.006	338
	N2	.173	.047	129	157/C	.082	246	.039	257	.022	261
	MF	.022	.001	116	208/C	.058	124	.048	150	.033	155
	M4	.021	.001	82	184/C	.027	114	.014	114	.008	114
	MS4	.005	.002	71	285/A	.015	232	.007	250	.004	254

TABLE 7 - CONTINUED

SITE (MOORING) (DEPTH)	CONSTITUENT	188.8 DAYS CENTERED AT DAY 50, 1985									
		CURRENT ELLIPSE				TEMPERATURE		SALINITY		DENSITY ANOMALY	
		MAJ. (M/S)	MIN. (M/S)	ORIEN. (DEG.T)	PHASE SENSE	AMP. (DEG. CEL.)	PHASE (GMT)	AMP. (P.P.T.)	PHASE (GMT)	AMP. (KG/M**3)	PHASE (GMT)
C10 (667,031M)	K1	.064	.018	71	351/C	.007	87	.006	168	.005	180
	O1	.064	.026	86	324/C	.011	212	.003	259	.002	302
	M2	.744	.217	129	177/C	.163	273	.094	272	.055	271
	S2	.107	.018	131	198/C	.046	285	.018	283	.008	283
	N2	.163	.034	127	150/C	.031	214	.017	223	.009	229
	MF	.016	.005	88	219/C	.026	31	.008	220	.010	209
	M4	.018	.006	226	21/C	.070	132	.041	127	.024	126
	MS4	.004	.002	103	251/A	.018	177	.010	191	.006	192

		188.8 DAYS CENTERED AT DAY 50, 1985									
C10 (667,061M)	K1					.030	228	.016	231	.009	231
	O1					.025	180	.009	188	.004	192
	M2					.150	290	.094	284	.056	282
	S2					.050	307	.023	296	.011	289
	N2					.017	123	.011	193	.007	213
	MF					.068	317	.040	308	.022	301
	M4					.053	173	.031	167	.018	164
	MS4					.019	188	.008	171	.004	158

TABLE 8

GENERAL TIDAL ANALYSIS FOR TEMPERATURE, BOTTOM PRESSURE

SITE (MOORING) (DEPTH)	CONSTITUENT	215.0 DAYS CENTERED AT DAY 206, 1983			
		TEMPERATURE		BOTTOM PRESSURE	
		AMP. (DEG. CEL.)	PHASE (GMT)	AMP. (DECIBARS)	PHASE (GMT)
C2 (553,115M)	K1	.043	89	.103	154
	O1	.059	69	.089	151
	M2	.363	236	.824	32
	S2	.064	244	.178	43
	N2	.115	193	.194	2
	MF	.051	97	.010	55
	M4	.079	93	.012	153
	MS4	.028	126	.005	152

		195.6 DAYS CENTERED AT DAY 46, 1984			
C2 (589,110M)	K1	.054	88	.126	151
	O1	.060	30	.091	154
	M2	.047	332	.820	31
	S2	.034	135	.150	43
	N2	.056	356	.197	2
	MF	.157	187	.010	317
	M4	.015	79	.012	153
	MS4	.012	57	.004	165

		183.6 DAYS CENTERED AT DAY 238, 1984			
C2 (621,112M)	K1			.141	151
	O1			.087	153
	M2			.808	31
	S2			.123	43
	N2			.199	5
	MF			.017	173
	M4			.014	143
	MS4			.005	163

TABLE 8 - CONTINUED

SITE (MOORING) (DEPTH)	CONSTITUENT	180.0 DAYS CENTERED AT DAY 54, 1985			
		TEMPERATURE		BOTTOM PRESSURE	
		AMP. (DEG. CEL.)	PHASE (GMT)	AMP. (DECIBARS)	PHASE (GMT)
(668,111M)	K1	.092	64	.169	154
	O1	.082	31	.107	153
	M2	.234	39	1.186	31
	S2	.049	71	.175	45
	N2	.121	16	.259	13
	MF	.152	35	.033	61
	M4	.009	263	.043	210
	MS4	.004	355	.004	194

TABLE 9

GENERAL TIDAL ANALYSIS FOR SEA LEVELS

LOCATION	CONSTITUENT	214.0 DAYS CENTERED AT DAY 198, 1983	
		SEA LEVELS	
		AMP. (CM)	PHASE (GMT)
HALIFAX	K1	8.506	184.48
	O1	4.682	157.63
	M2	62.972	136.82
	S2	17.622	162.27
	N2	14.331	110.70
	MF	1.786	196.28
	M4	3.797	199.97
	MS4	1.857	337.48

		213.0 DAYS CENTERED AT DAY 46, 1984	
HALIFAX	K1	10.379	180.19
	O1	5.671	168.90
	M2	60.727	135.63
	S2	13.116	161.97
	N2	14.468	106.15
	MF	.874	266.15
	M4	3.777	205.22
	MS4	1.683	335.40

		183.0 DAYS CENTERED AT DAY 244, 1984	
HALIFAX	K1	12.983	182.54
	O1	4.560	162.20
	M2	62.070	137.51
	S2	11.015	159.46
	N2	14.744	111.63
	MF	3.651	190.18
	M4	4.071	204.49
	MS4	1.802	338.34

TABLE 9 - CONTINUED

LOCATION	CONSTITUENT	182.1 DAYS CENTERED AT DAY 61, 1985	
		SEA LEVELS	
		AMP. (CM)	PHASE (GMT)
HALIFAX	K1	12.212	179.43
	O1	4.860	162.68
	M2	60.946	135.03
	S2	11.304	161.88
	N2	14.302	113.30
	MF	2.131	114.05
	M4	3.316	201.44
	MS4	1.783	342.16

		91.4 DAYS CENTERED AT DAY 136, 1983	
YARMOUTH	K1	13.440	266.11
	O1	10.336	255.68
	M2	163.436	209.00
	S2	25.240	251.33
	N2	27.110	175.79
	MF	8.823	243.03
	M4	2.585	113.29
	MS4	.602	153.17

		60.6 DAYS CENTERED AT DAY 122, 1984	
YARMOUTH	K1	14.842	261.51
	O1	10.330	235.95
	M2	170.070	206.39
	S2	26.174	253.12
	N2	34.745	164.26
	MF	4.184	316.36
	M4	2.042	106.10
	MS4	.752	153.87

TABLE 9 - CONTINUED

LOCATION	CONSTITUENT	134.6 DAYS CENTERED AT DAY 268, 1984	
		SEA LEVELS	
		AMP. (CM)	PHASE (GMT)
YARMOUTH	K1	18.509	260.70
	O1	10.222	233.38
	M2	159.213	208.17
	S2	23.464	240.93
	N2	37.616	183.55
	MF	3.249	190.84
	M4	1.575	109.78
	MS4	1.100	127.50

		193.4 DAYS CENTERED AT DAY 66, 1985	
YARMOUTH	K1	17.947	244.99
	O1	11.035	234.21
	M2	164.541	207.30
	S2	21.662	238.43
	N2	37.393	178.12
	MF	1.700	119.59
	M4	1.790	96.95
	MS4	1.022	151.89

		214.0 DAYS CENTERED AT DAY 197, 1983	
SHELBURNE	K1	2.035	105.55
	O1	5.126	81.29
	M2	52.092	42.63
	S2	17.069	24.46
	N2	6.106	45.00
	MF	2.157	115.61
	M4	.153	282.56
	MS4	.416	138.12

TABLE 9 - CONTINUED

LOCATION	CONSTITUENT	177.3 DAYS CENTERED AT DAY 28, 1984	
		SEA LEVELS	
		AMP. (CM)	PHASE (GMT)
SHELBURNE	K1	10.800	315.15
	O1	8.813	43.82
	M2	68.750	87.15
	S2	17.057	20.25
	N2	16.116	103.59
	MF	2.013	237.77
	M4	.623	92.80
	MS4	.418	171.89

		183.0 DAYS CENTERED AT DAY 244, 1984	
SHELBURNE	K1	16.673	312.36
	O1	8.125	36.07
	M2	70.976	89.77
	S2	11.217	21.39
	N2	16.699	111.61
	MF	3.202	99.12
	M4	.867	67.12
	MS4	.581	162.90

		135.7 DAYS CENTERED AT DAY 83, 1985	
SHELBURNE	K1	16.911	325.09
	O1	8.539	34.51
	M2	70.823	86.82
	S2	12.306	33.86
	N2	17.486	111.16
	MF	2.044	30.63
	M4	.626	63.85
	MS4	.728	194.64

TABLE 9 - CONTINUED

LOCATION	CONSTITUENT	214.0 DAYS CENTERED AT DAY 198, 1983	
		SEA LEVELS	
		AMP. (CM)	PHASE (GMT)
CLARK'S HAR.	K1	11.372	154.48
	O1	9.605	140.05
	M2	105.632	27.28
	S2	22.669	45.79
	N2	23.276	358.17
	MF	2.637	198.71
	M4	4.746	143.61
	MS4	1.700	167.18

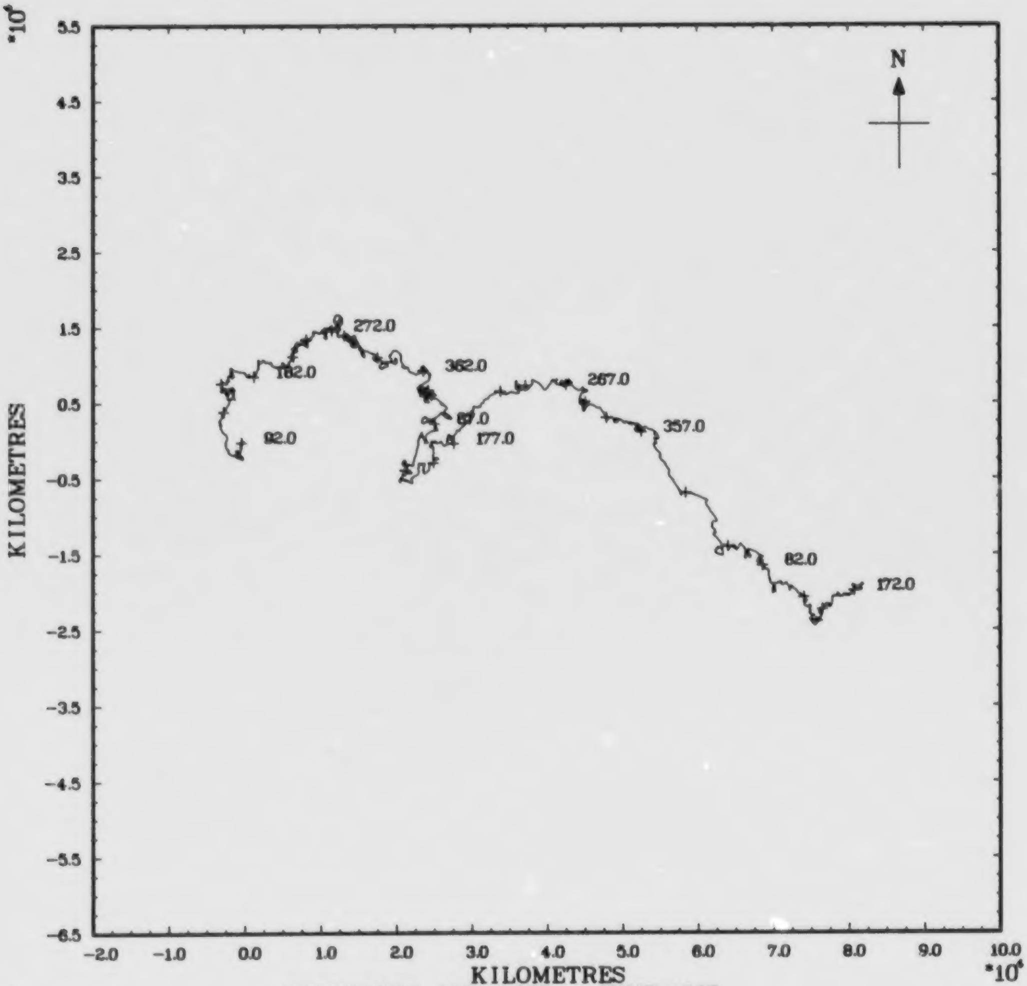
		213.0 DAYS CENTERED AT DAY 47, 1984	
CLARK'S HAR.	K1	14.012	146.18
	O1	10.130	145.85
	M2	104.492	26.20
	S2	17.859	41.00
	N2	23.588	357.82
	MF	2.438	283.33
	M4	4.389	139.80
	MS4	1.417	167.15

		183.0 DAYS CENTERED AT DAY 245, 1984	
CLARK'S HAR.	K1	17.490	150.80
	O1	9.355	140.84
	M2	103.538	27.28
	S2	13.752	44.11
	N2	24.428	1.09
	MF	3.190	196.99
	M4	4.958	140.30
	MS4	1.664	169.28

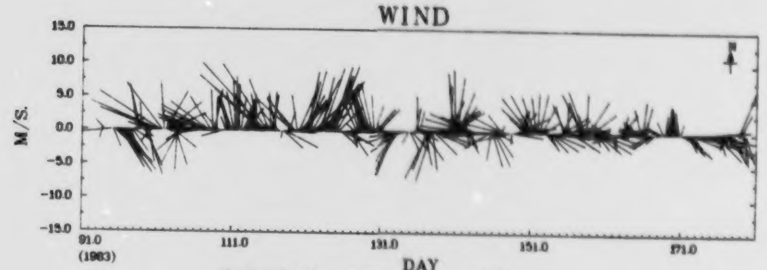
TABLE 9 - CONTINUED

LOCATION	CONSTITUENT	182.0 DAYS CENTERED AT DAY 61, 1985	
		SEA LEVELS	
		AMP. (CM)	PHASE (GMT)
CLARK'S HAR.	K1	16.613	150.98
	O1	10.015	141.99
	M2	104.181	26.29
	S2	15.702	47.66
	N2	23.373	2.64
	MF	1.514	111.40
	M4	4.790	138.72
	MS4	1.810	161.38

WIND



YARMOUTH APR. 1983 – JUNE 1985



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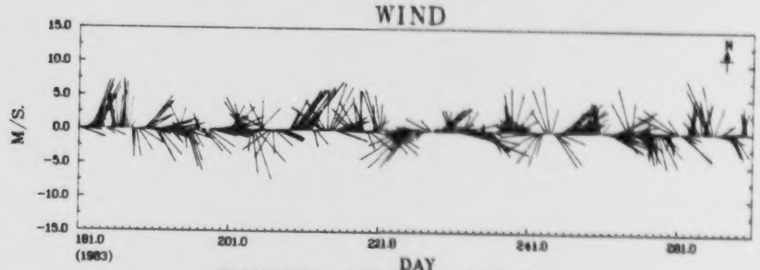

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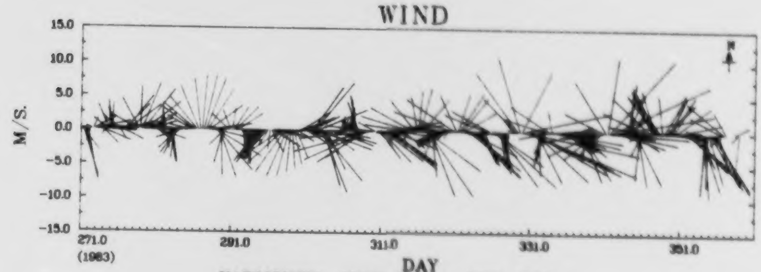

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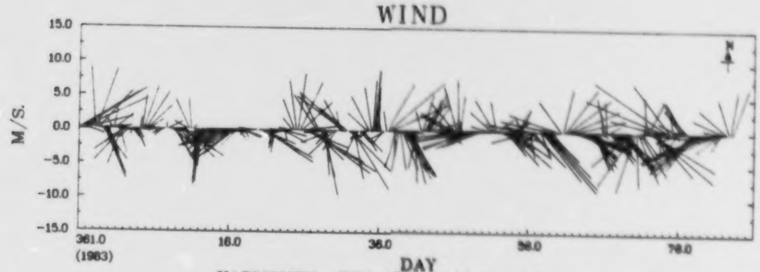

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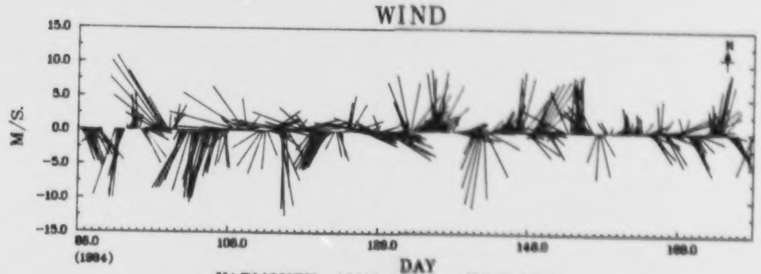

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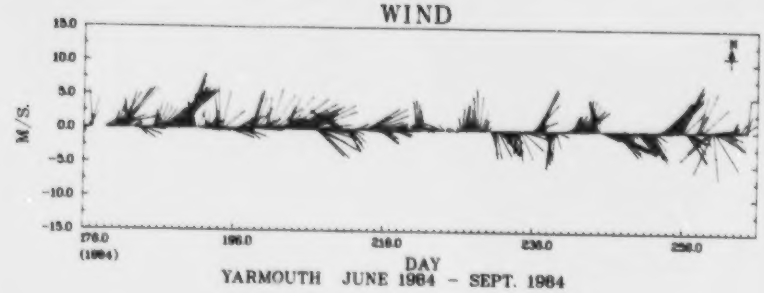
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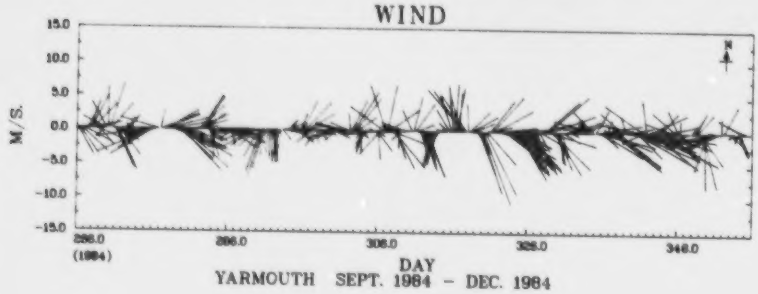
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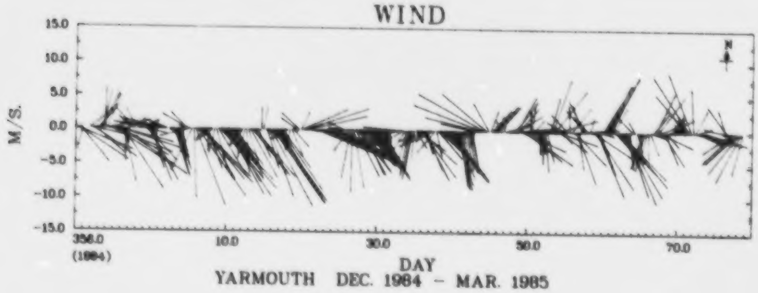
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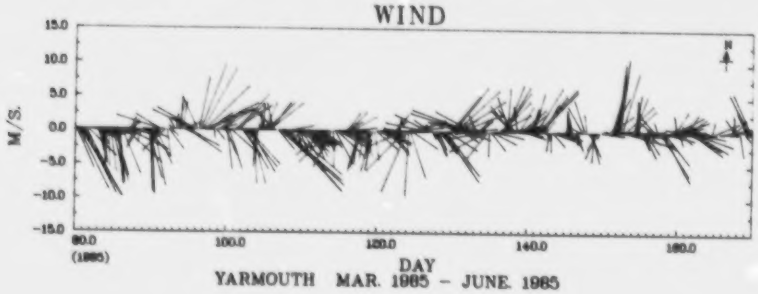
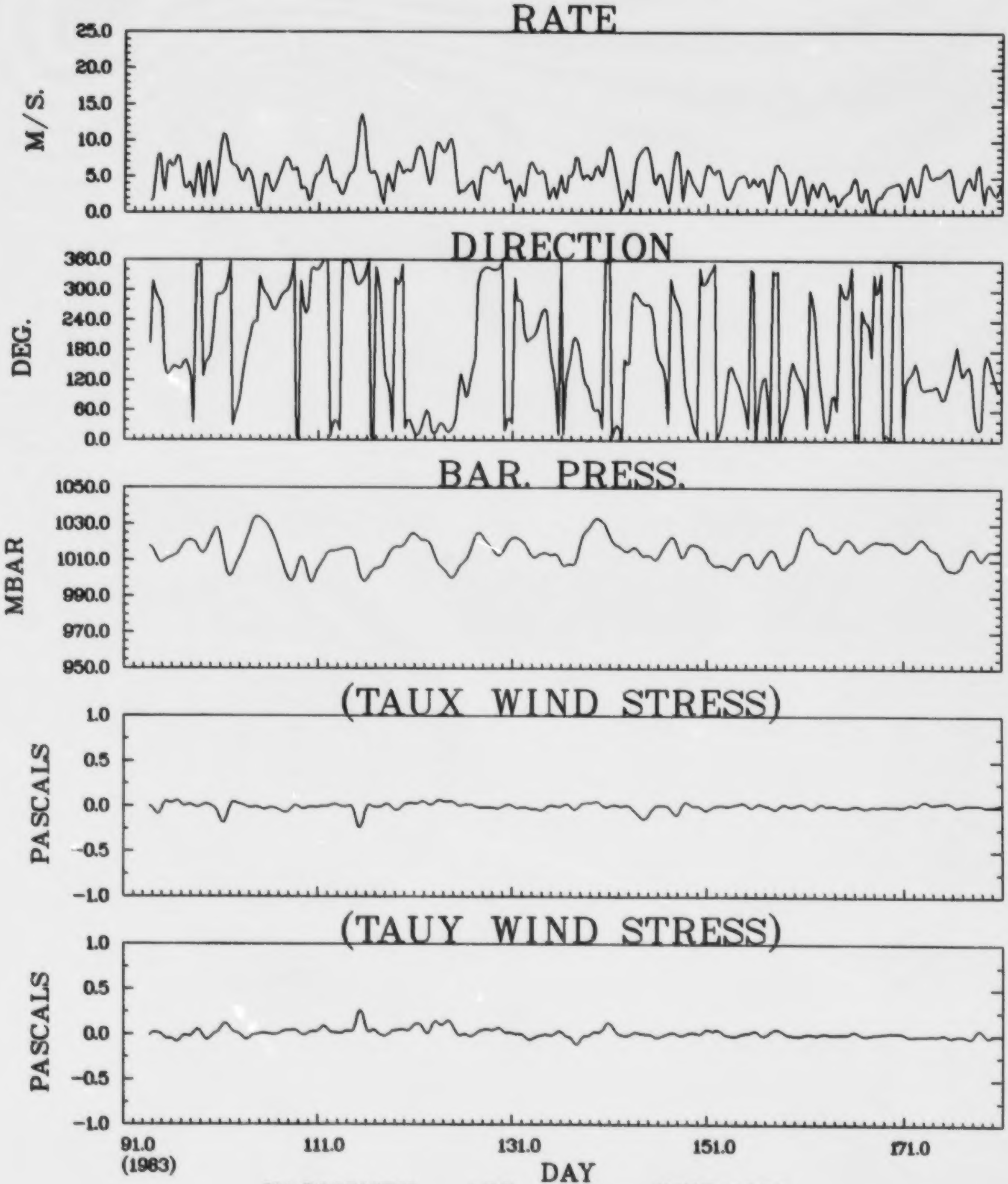
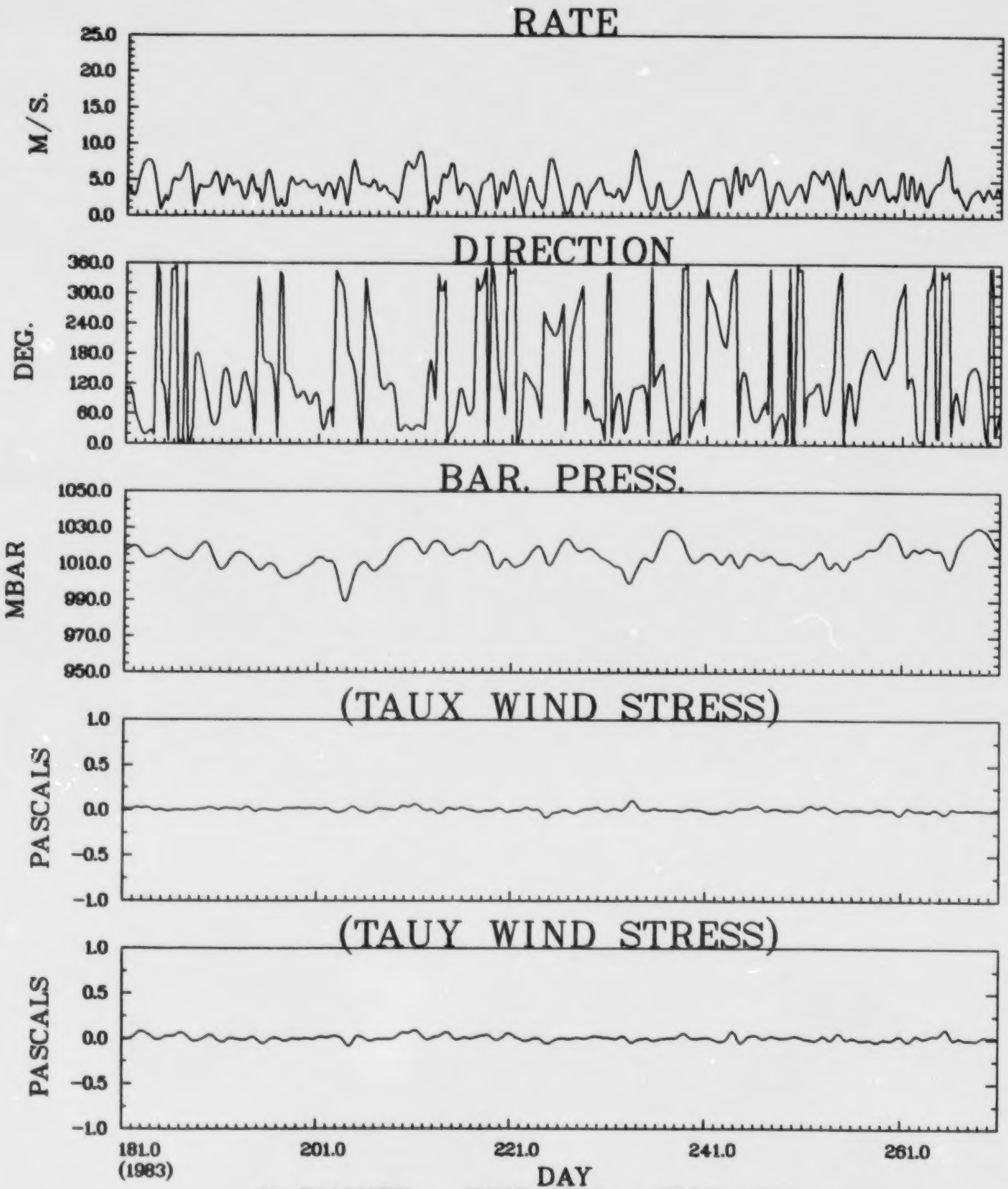
YARMOUTH DEC. 1984 - MAR. 1985


WIND

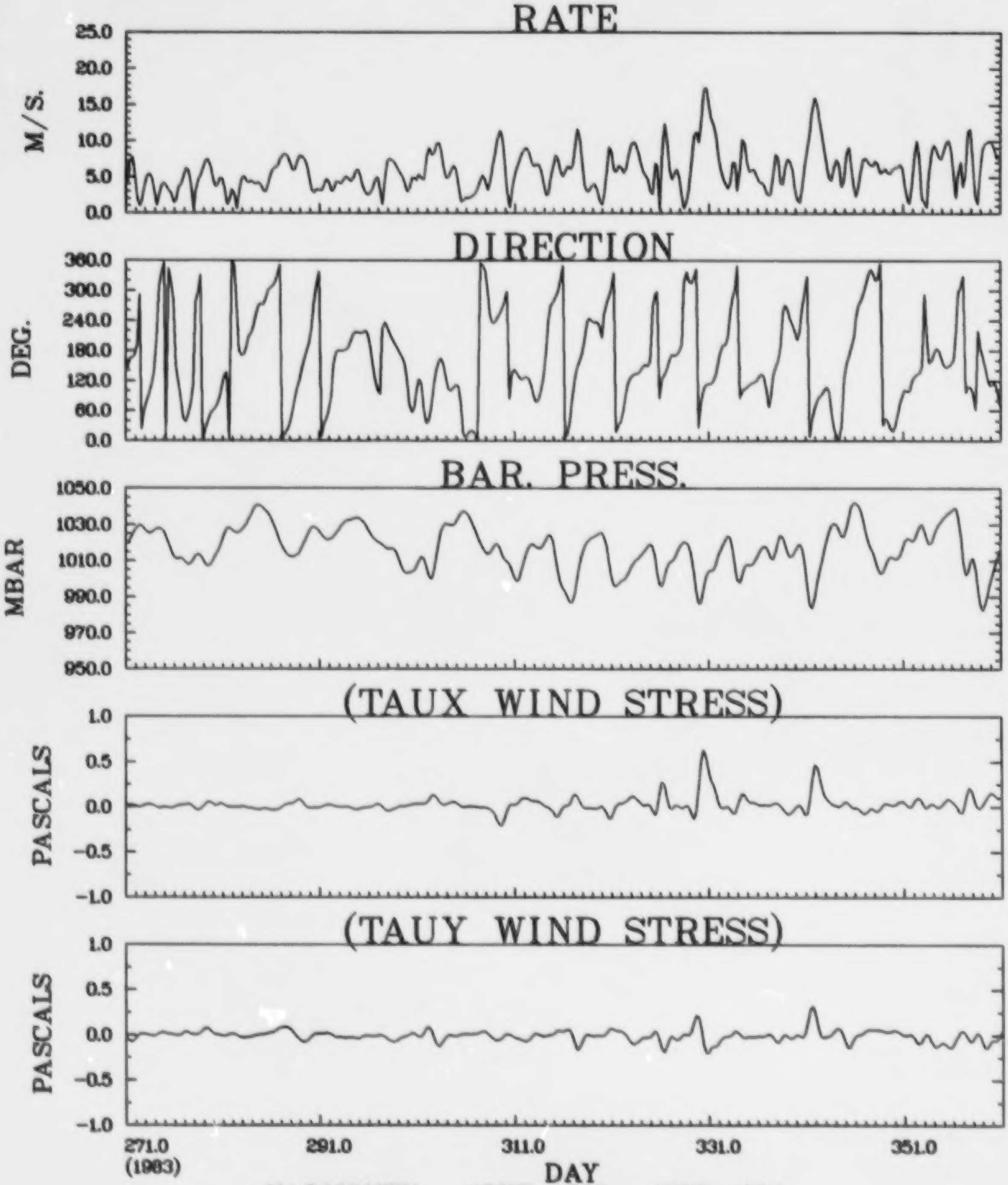
YARMOUTH MAR. 1985 - JUNE. 1985



YARMOUTH APR. 1983 - JUNE 1983



YARMOUTH JUNE. 1983 - SEPT. 1983



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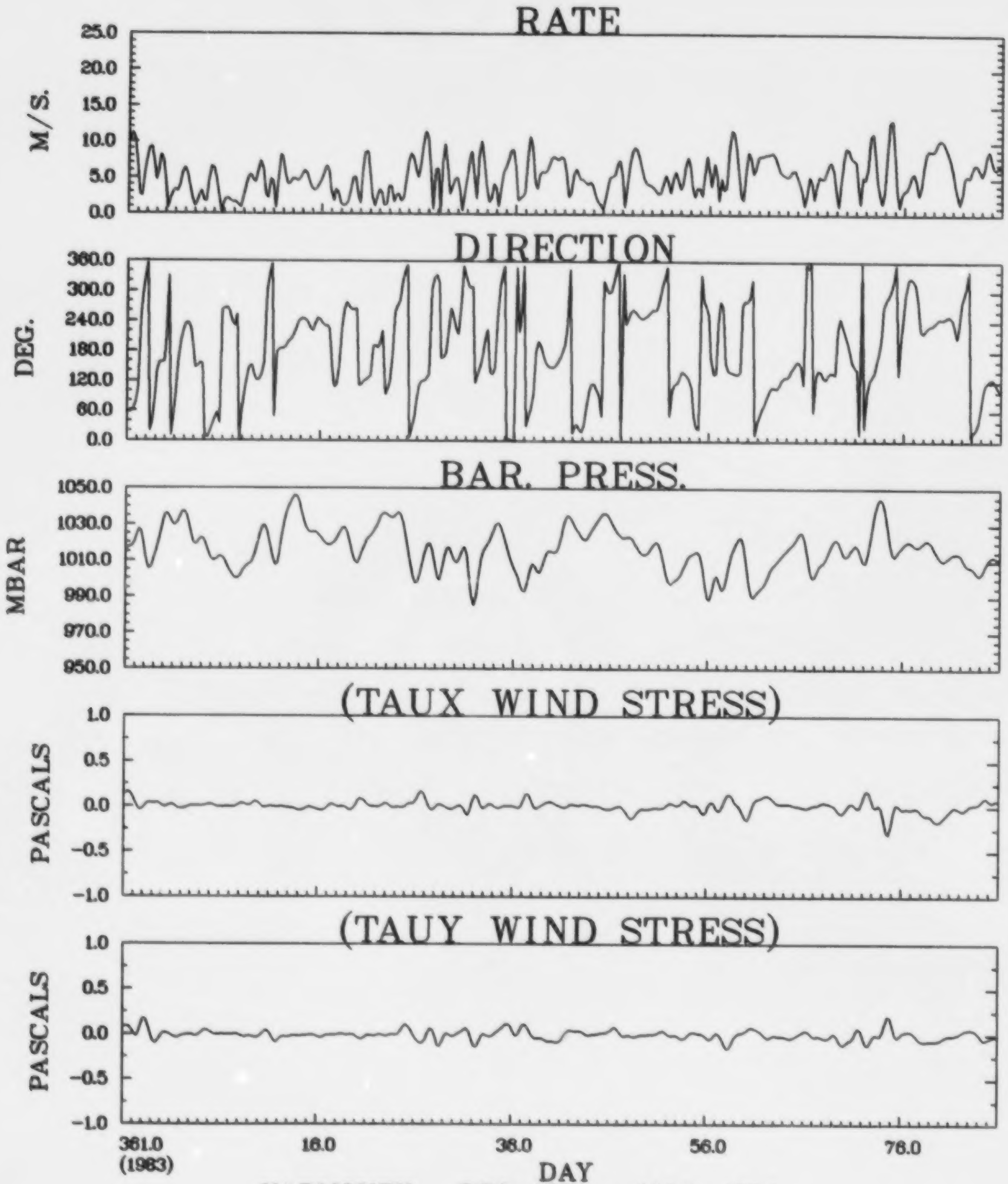

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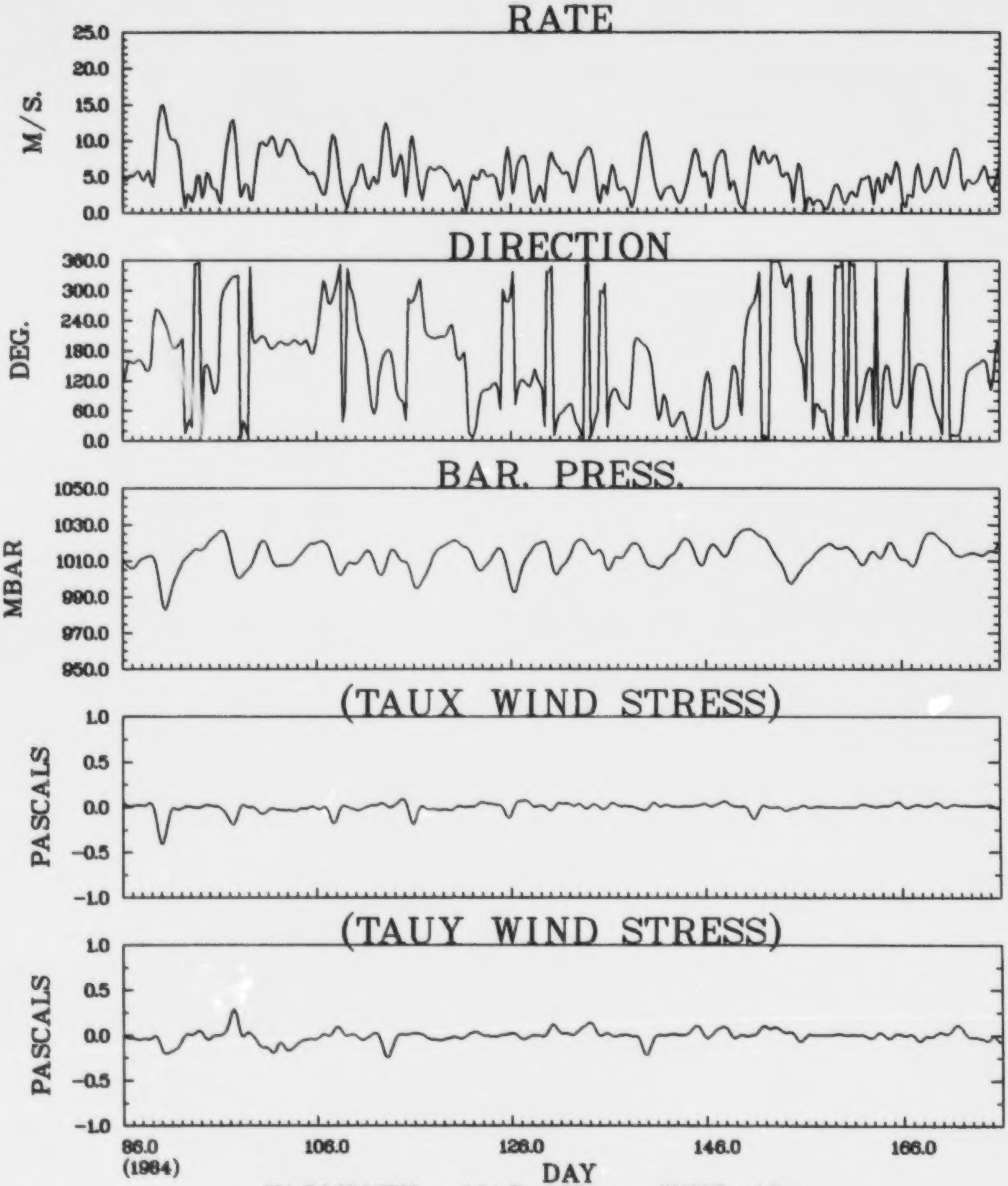

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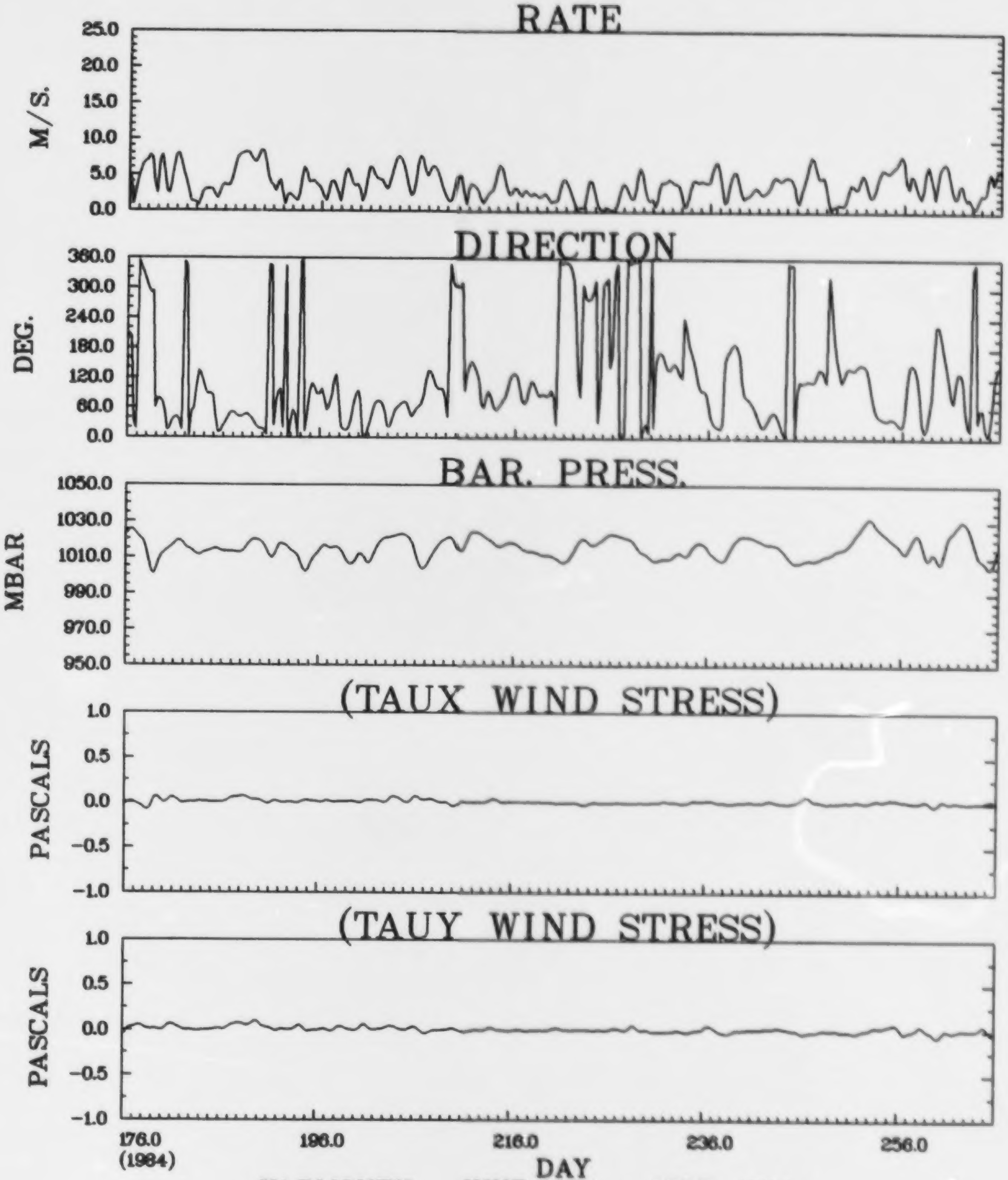

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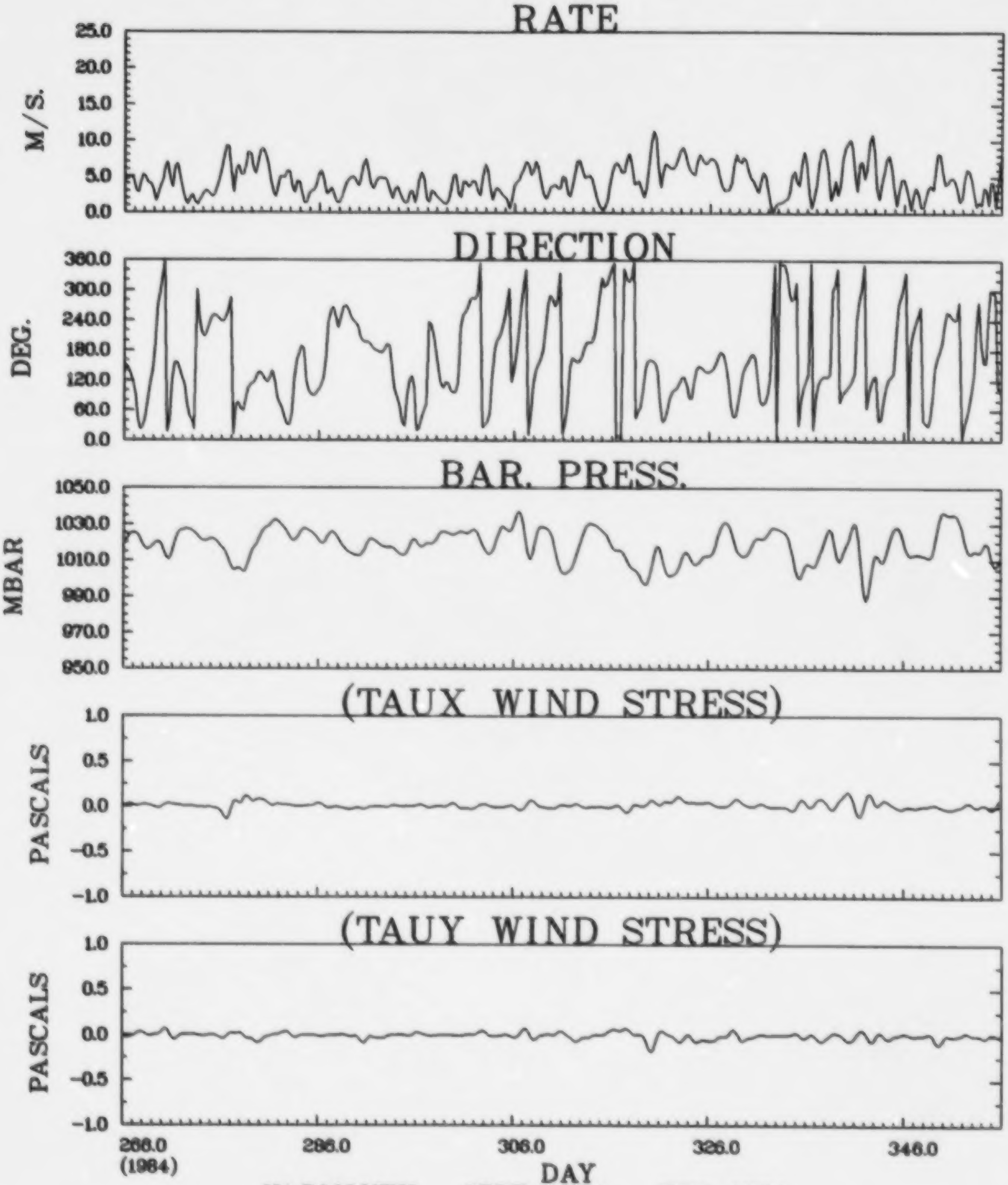

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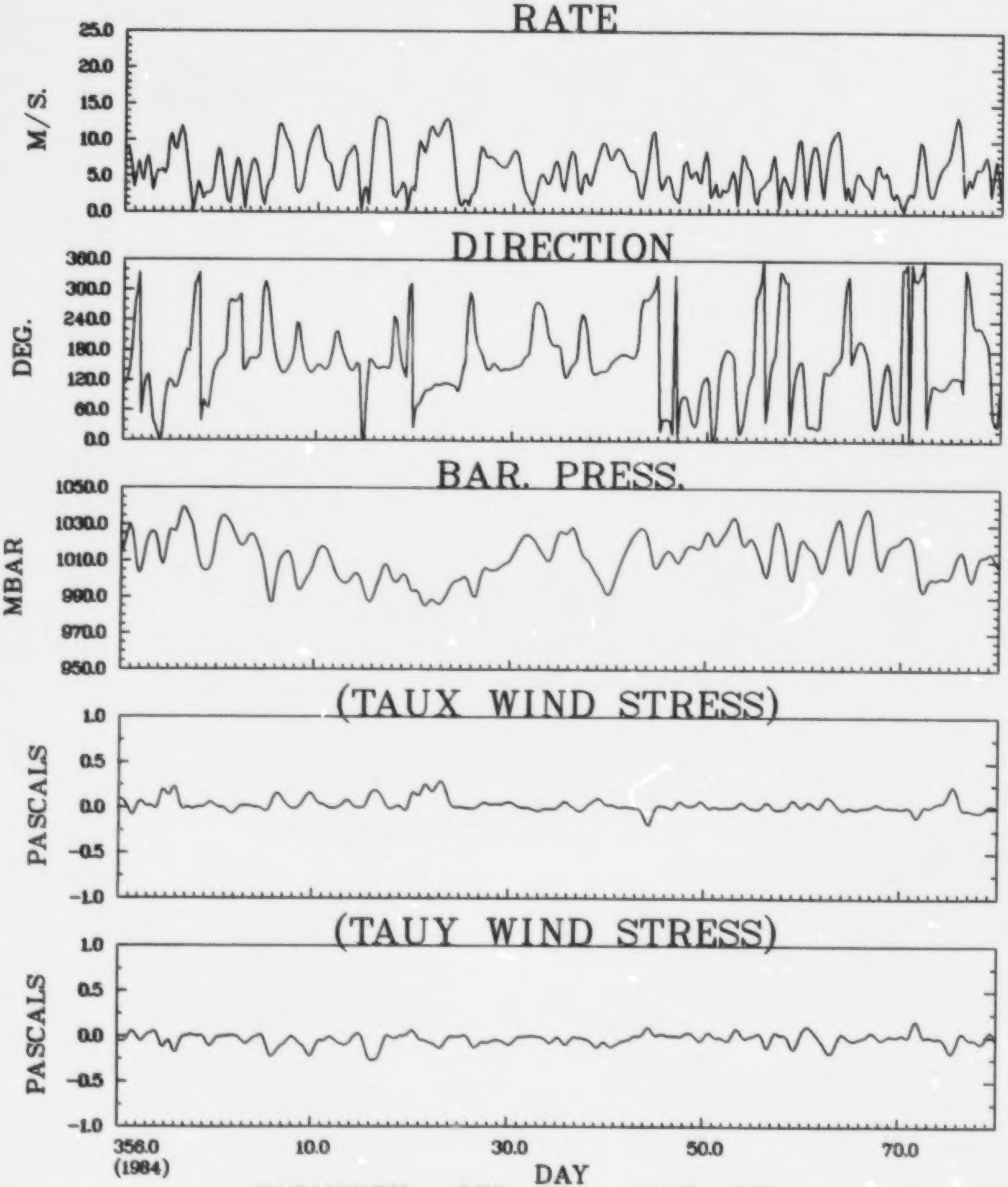

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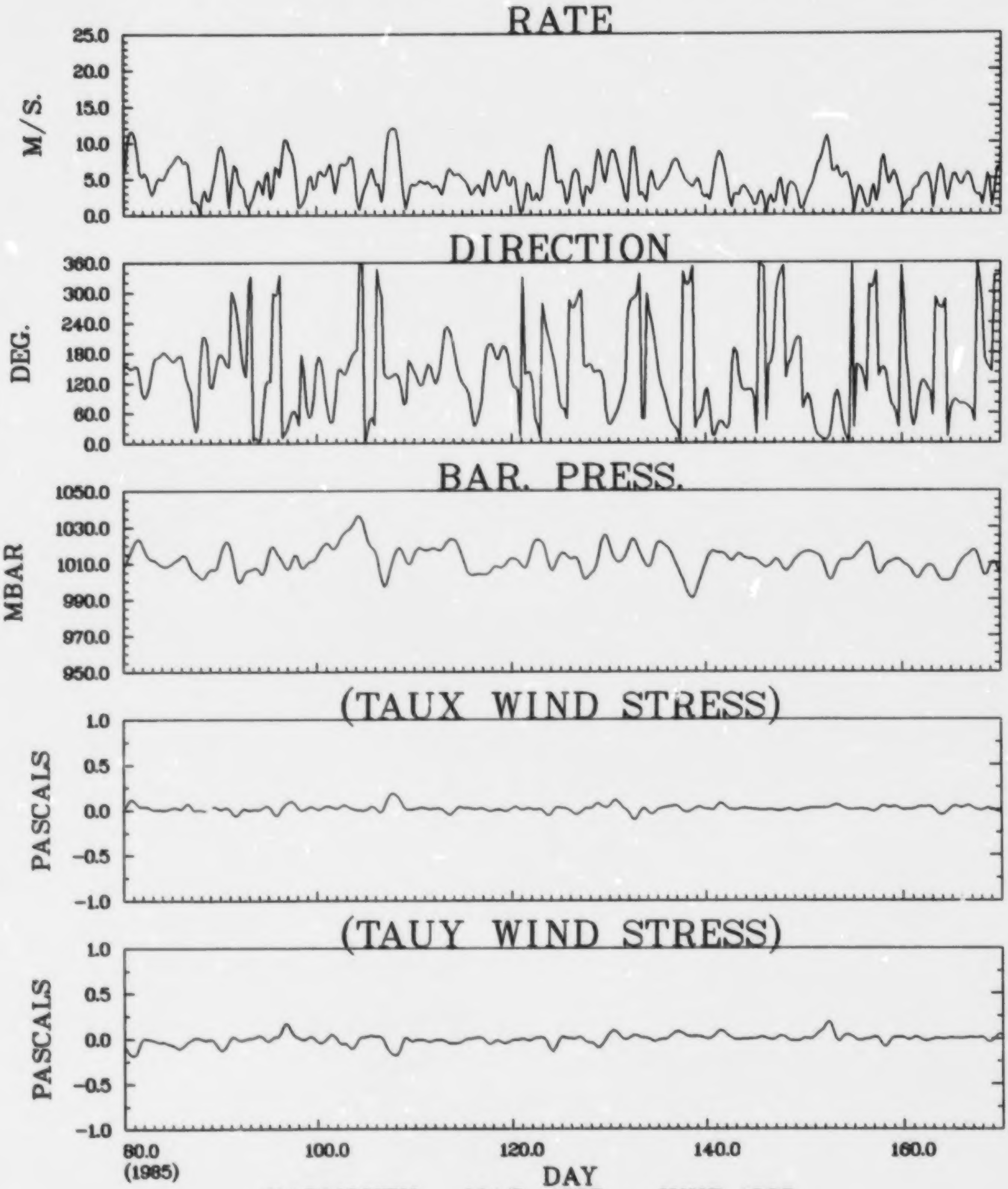
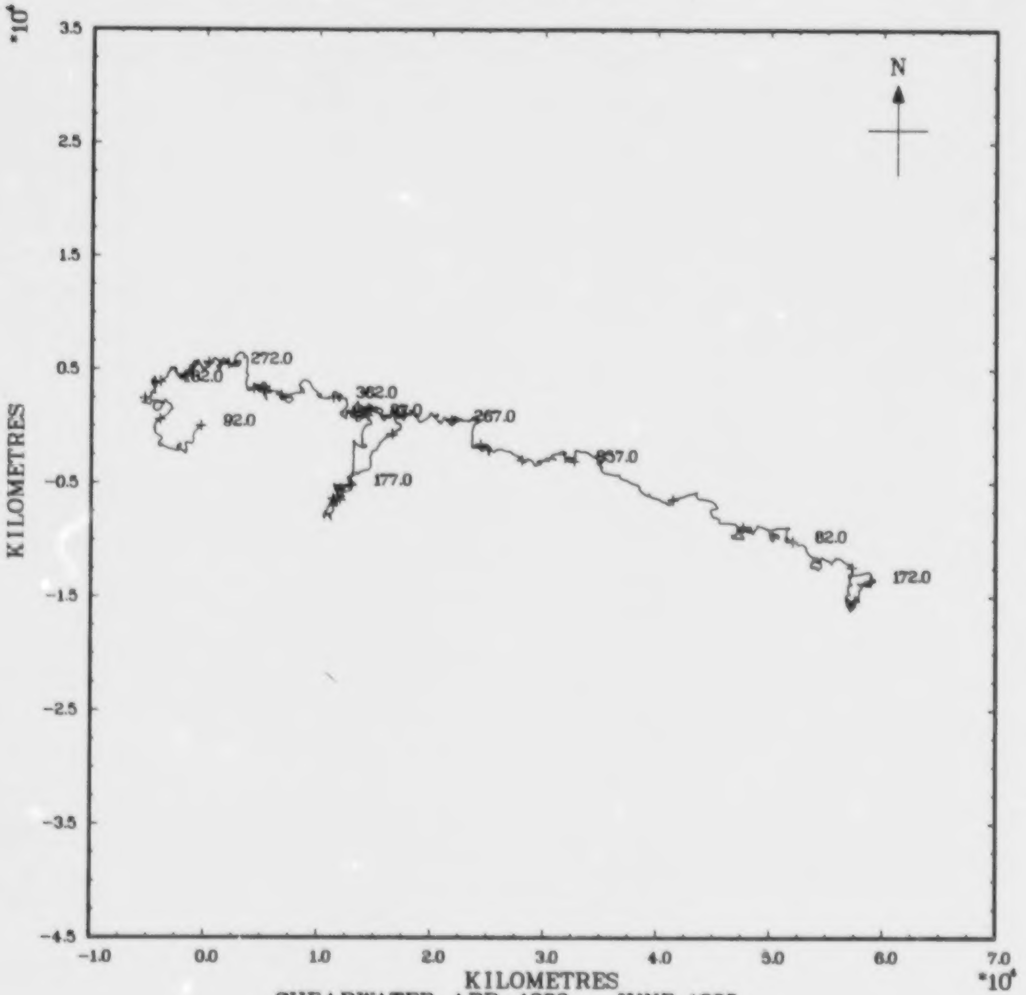
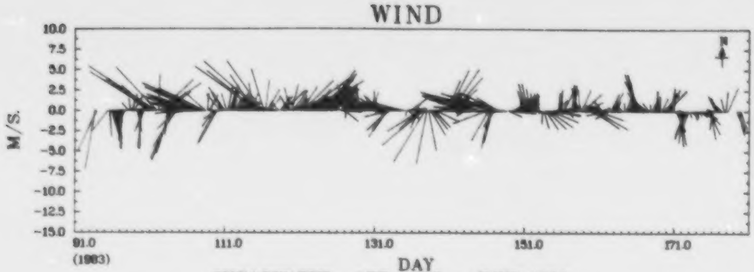


YARMOUTH MAR. 1985 - JUNE 1985

WIND



SHEARWATER APR. 1983 - JUNE 1985



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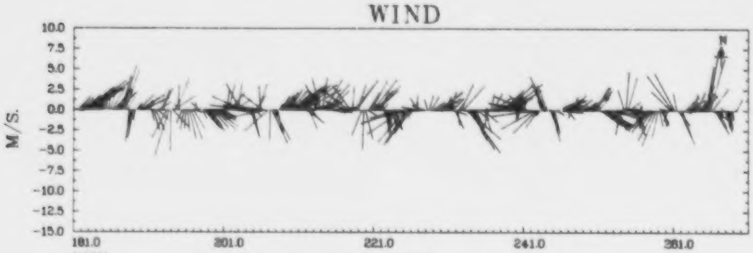

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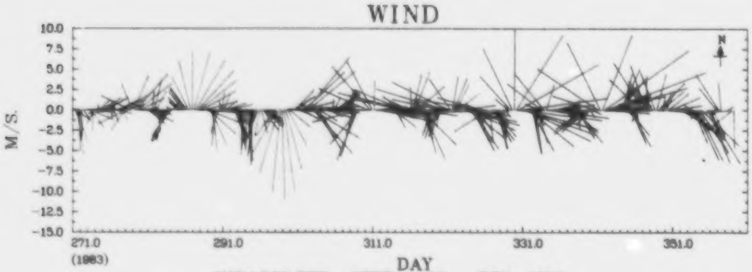

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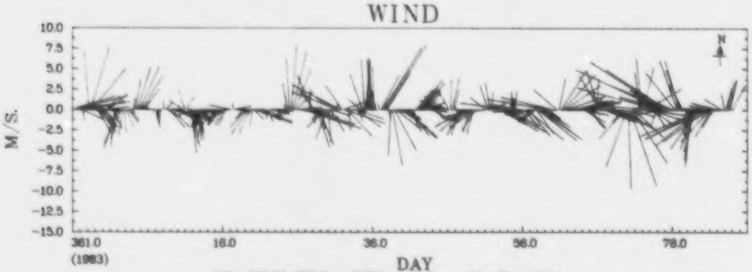
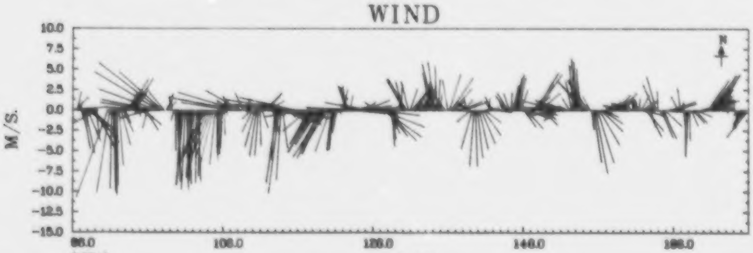


SHAERWATER DEC. 1983 - MAR. 1984



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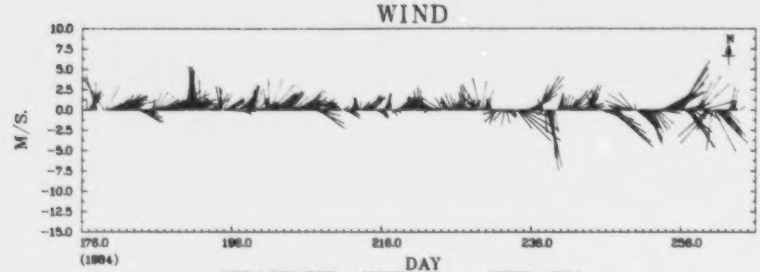

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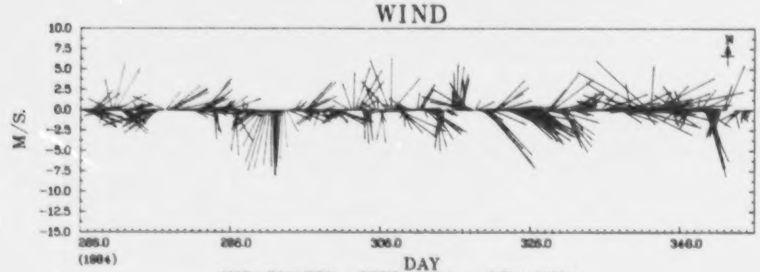

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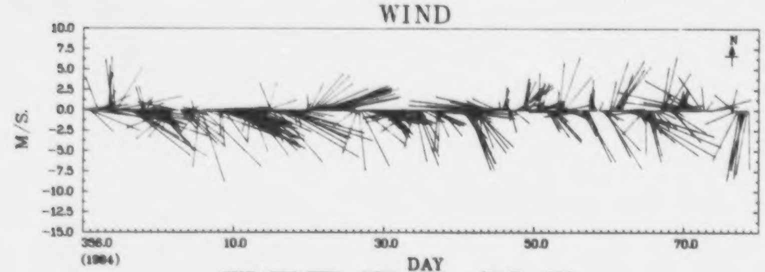

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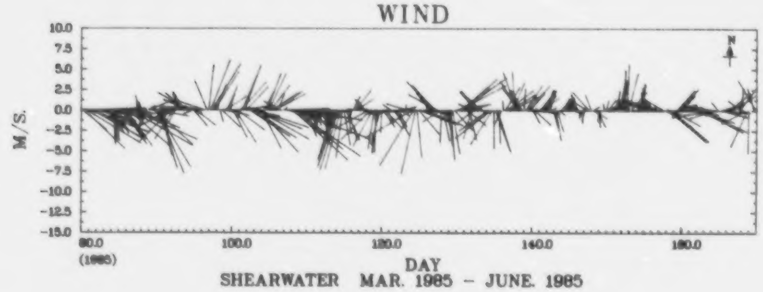

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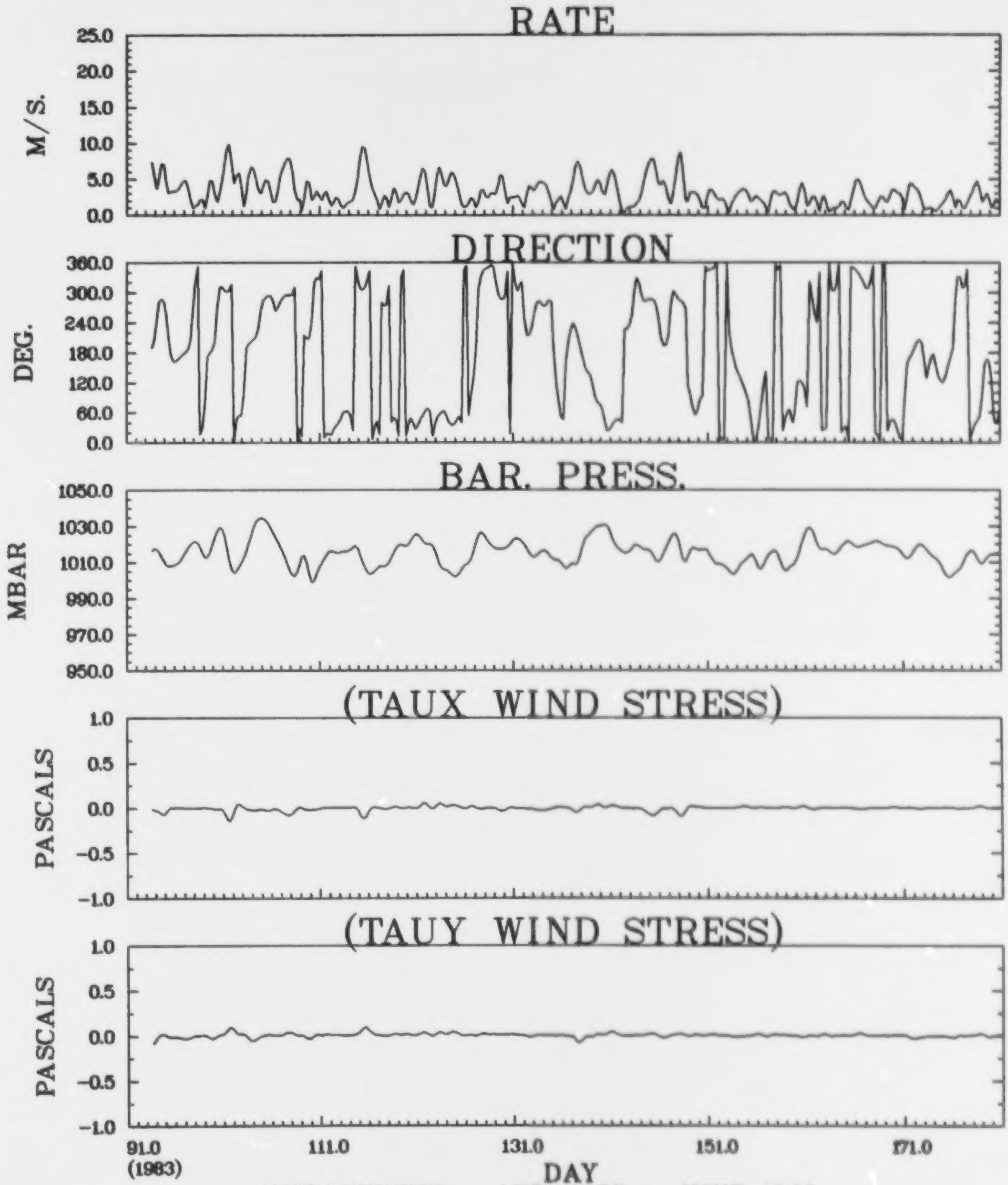

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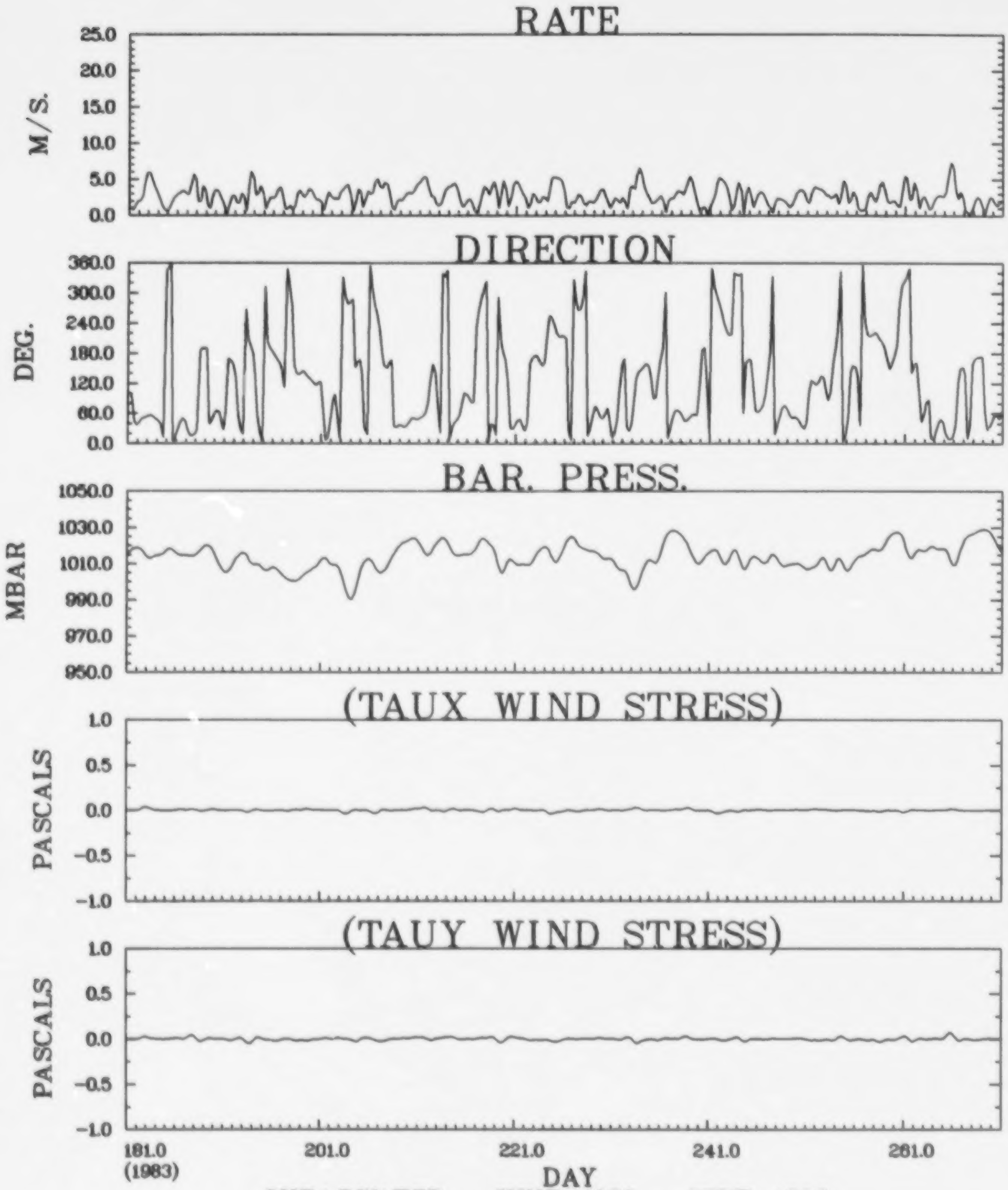

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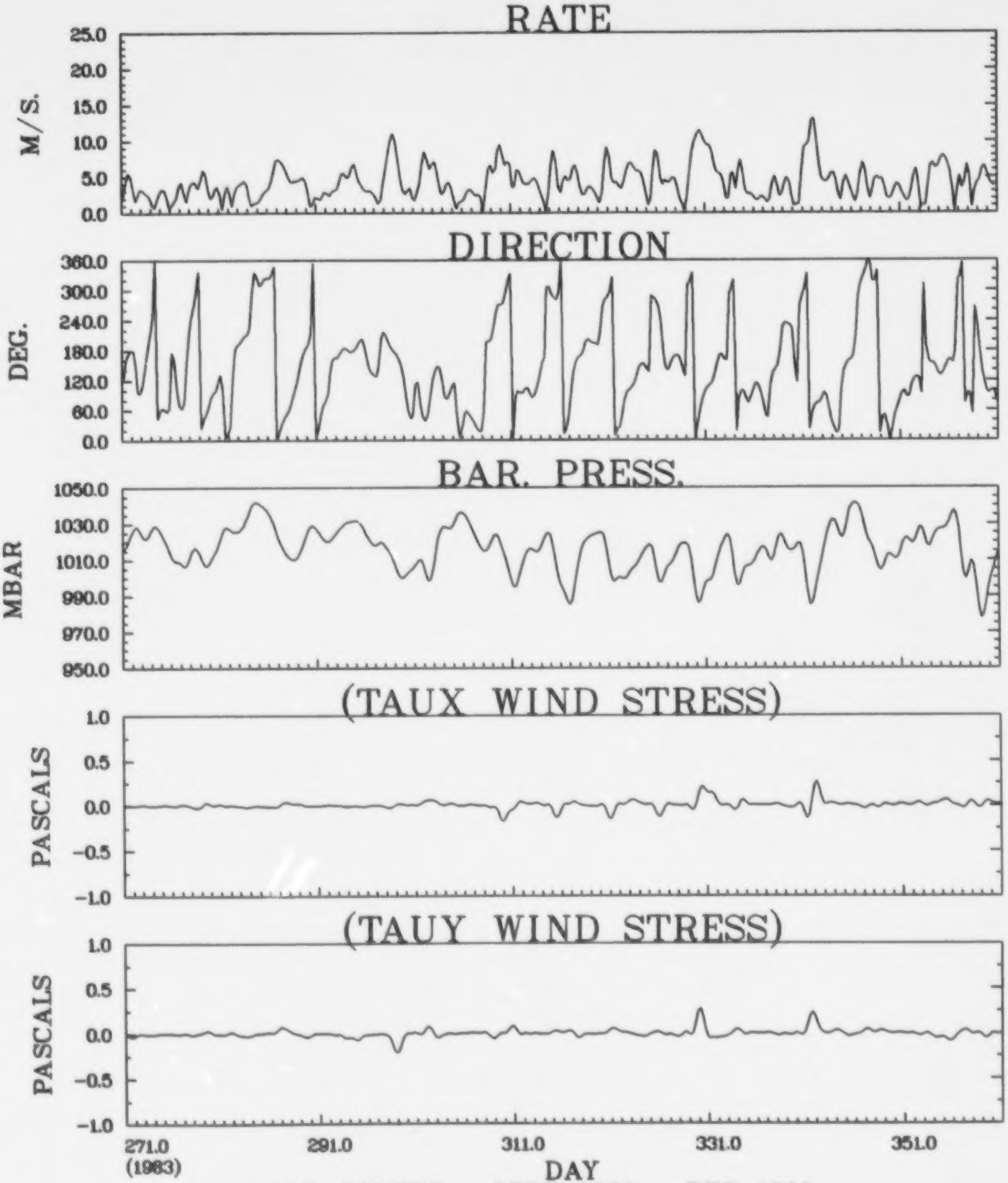

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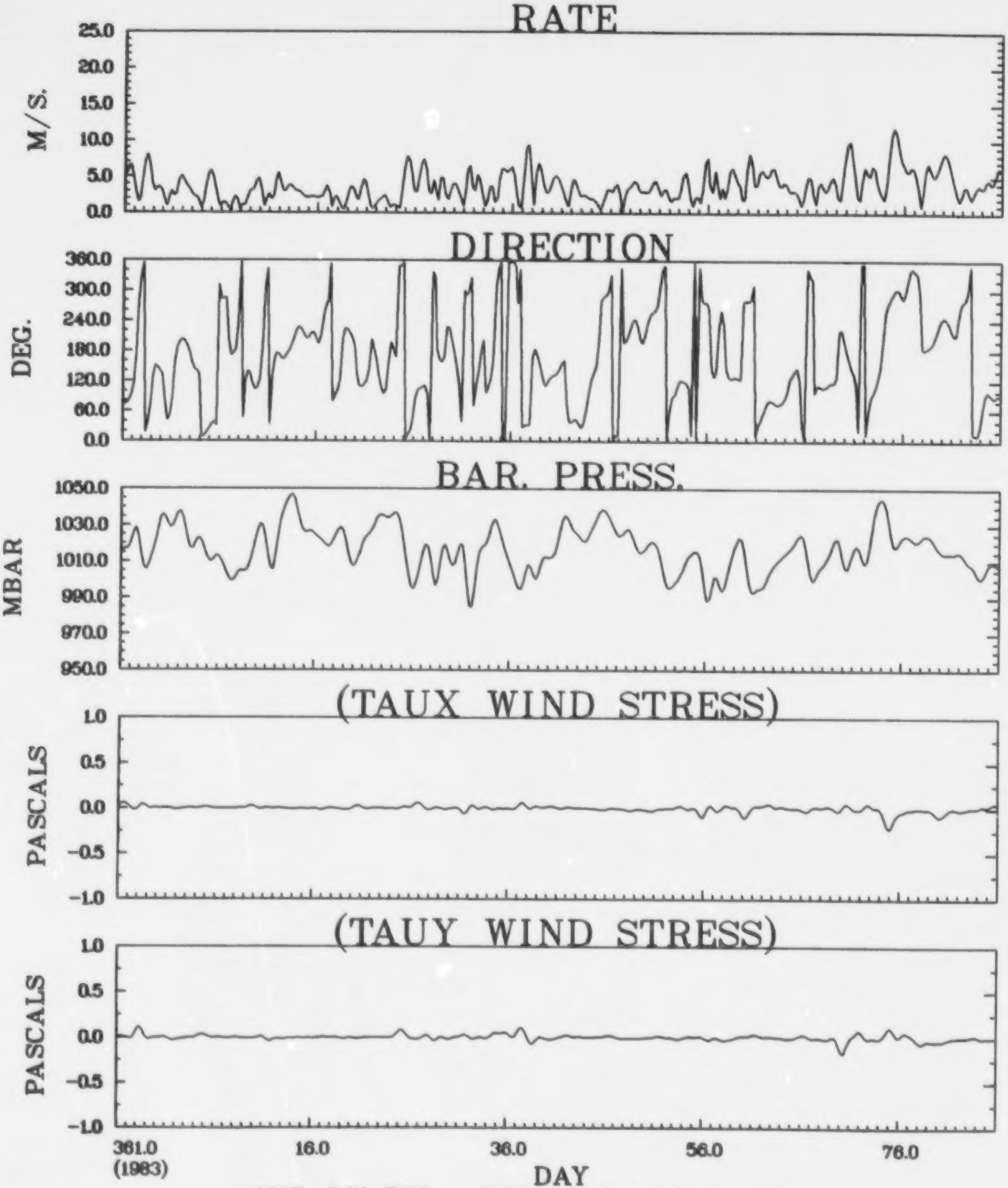

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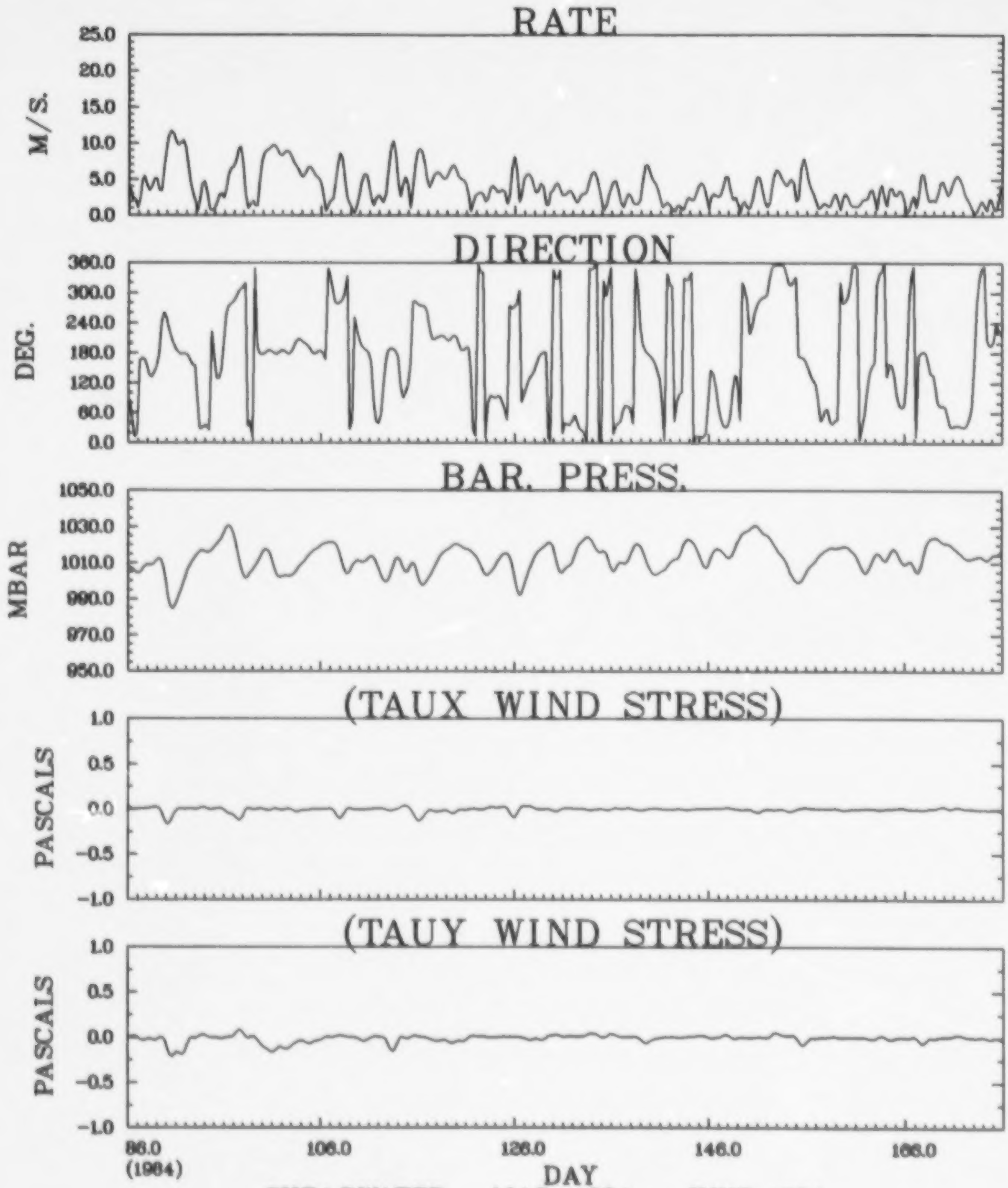

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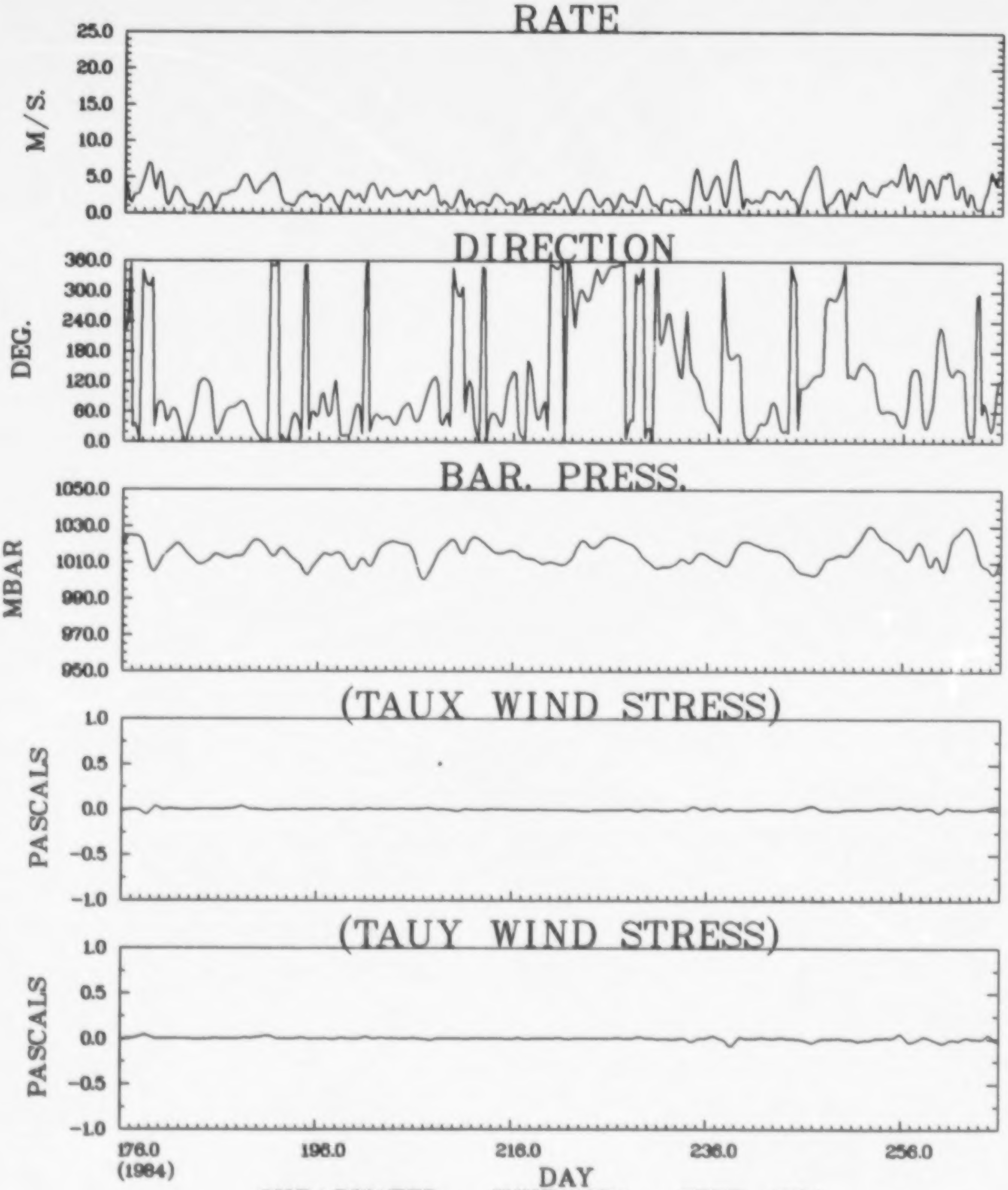

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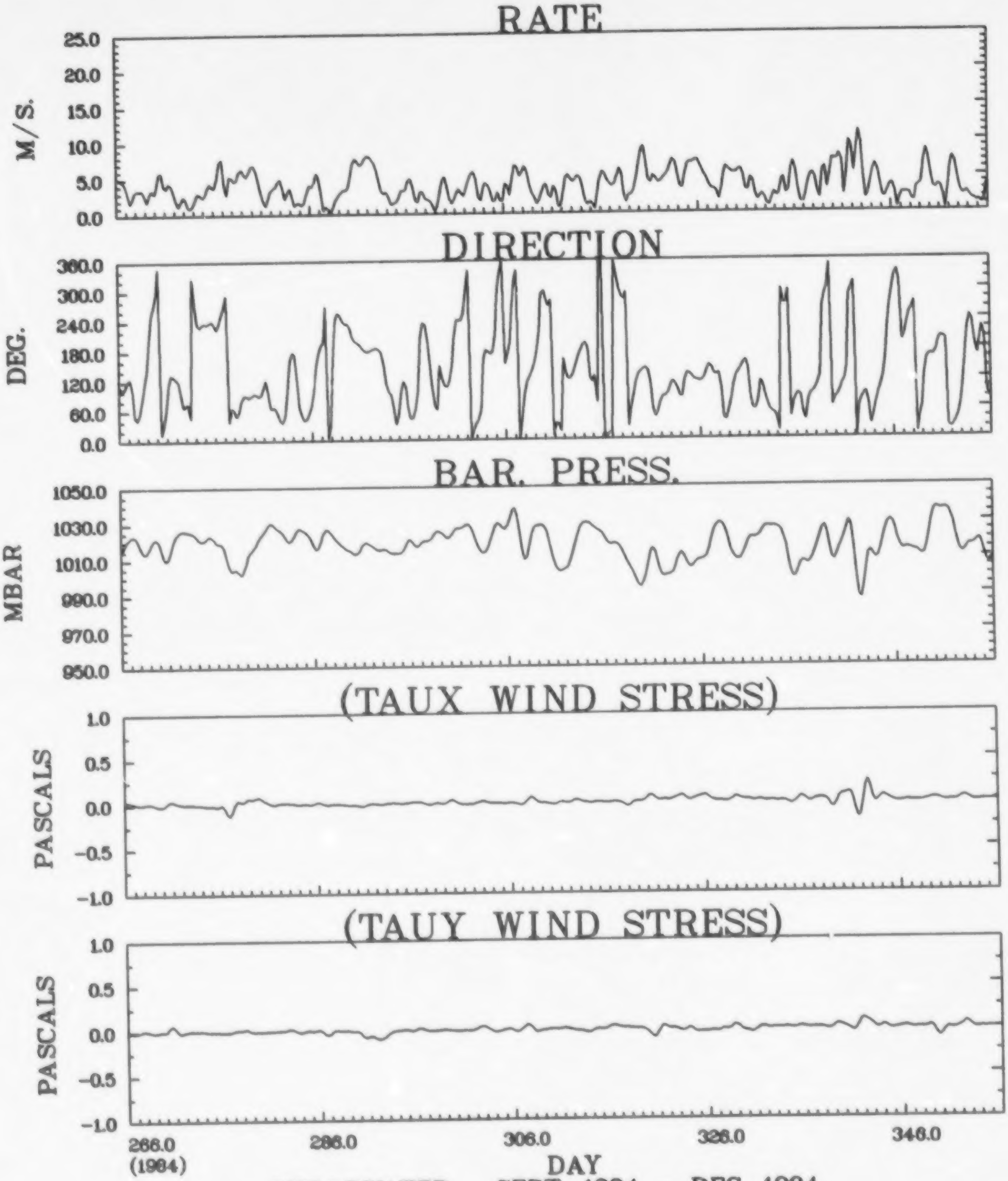

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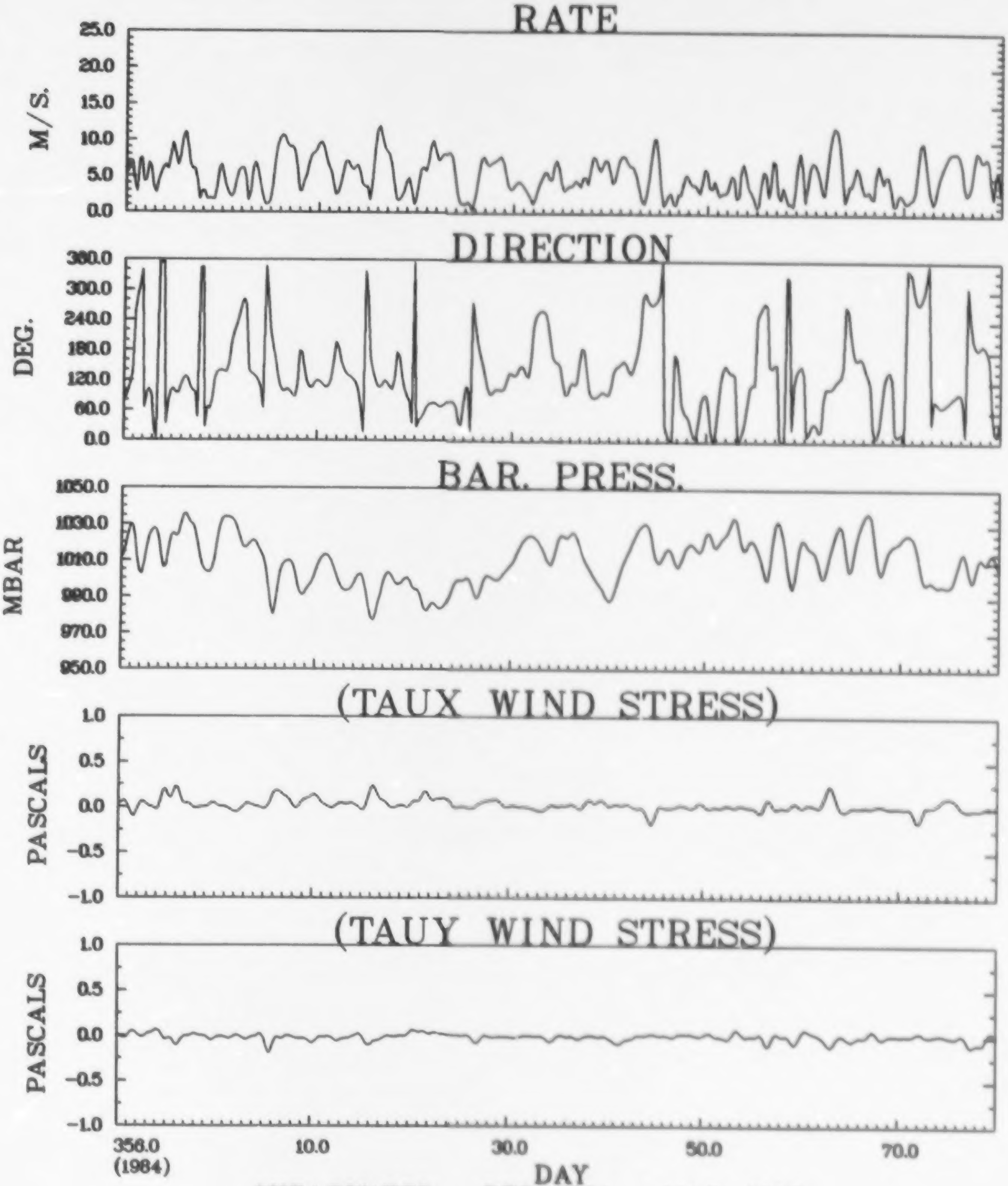

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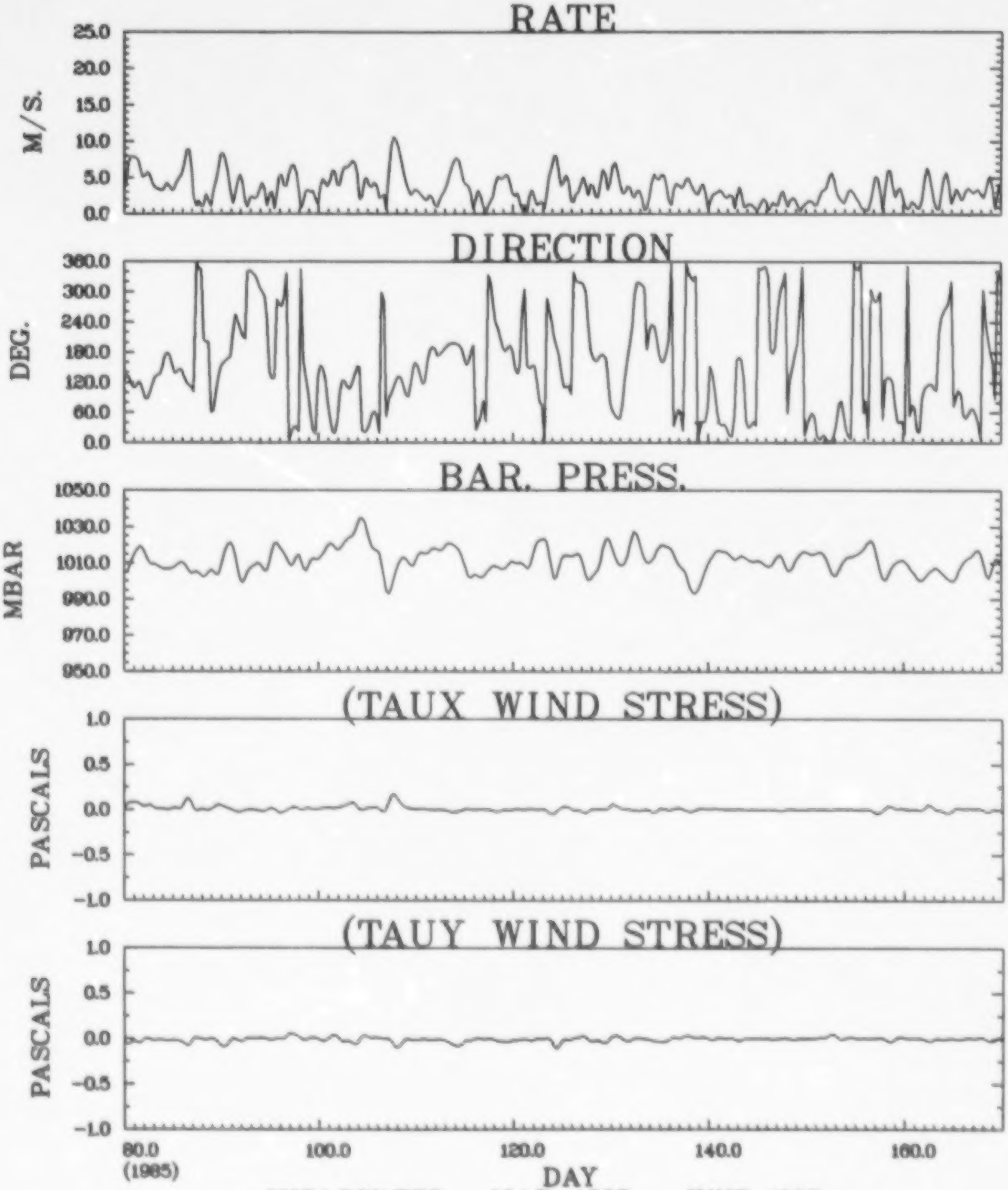
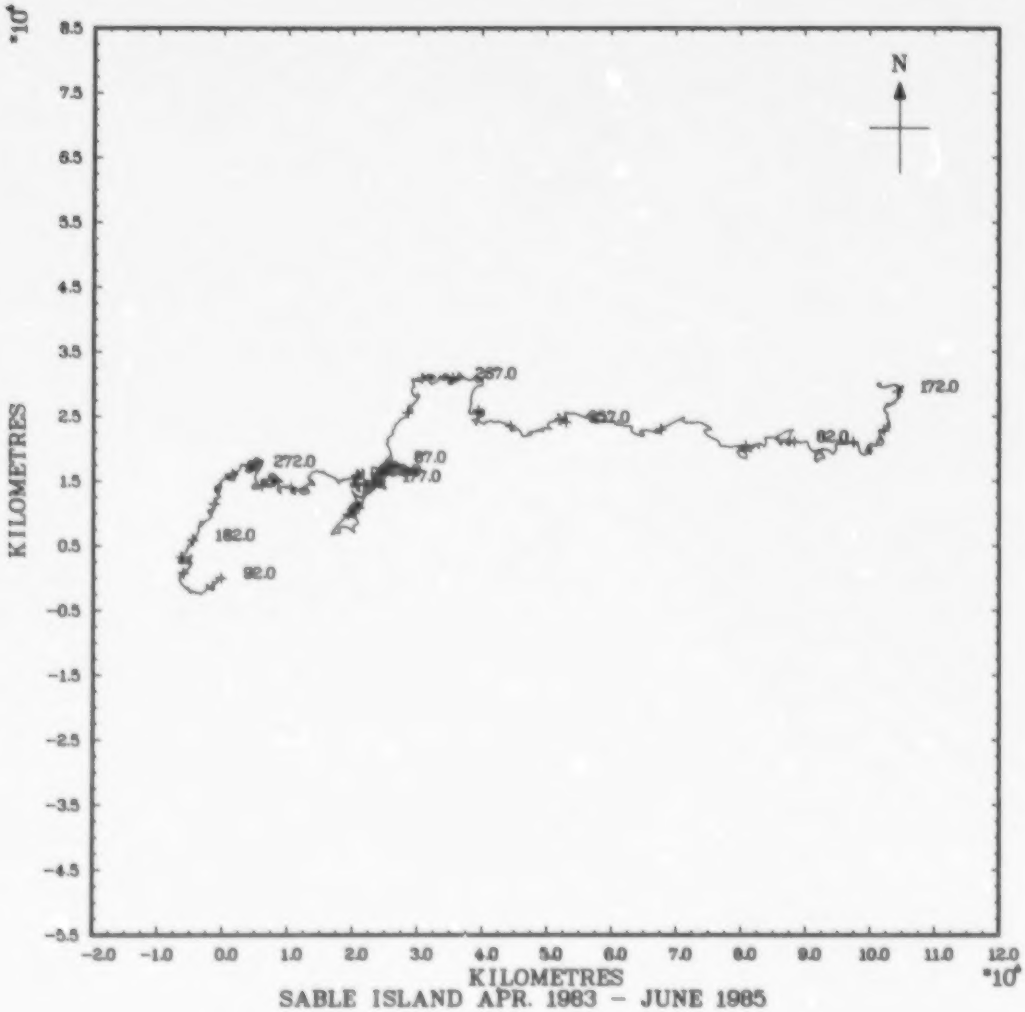


SHEARWATER MAR. 1985 – JUNE 1985

WIND



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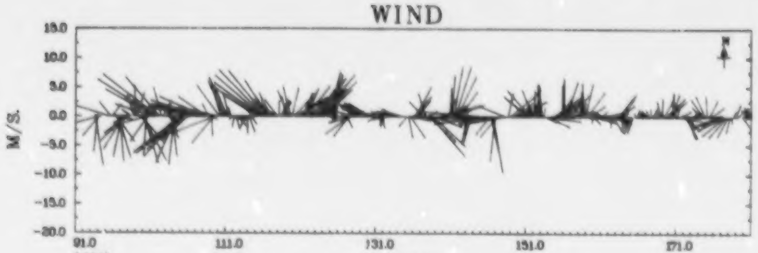

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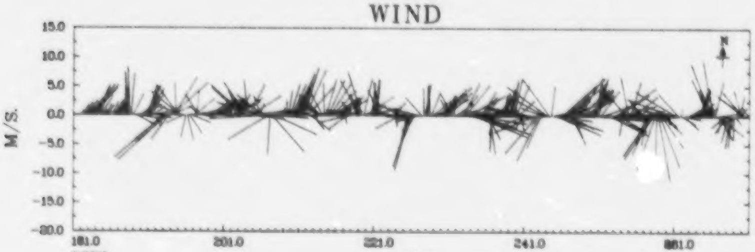

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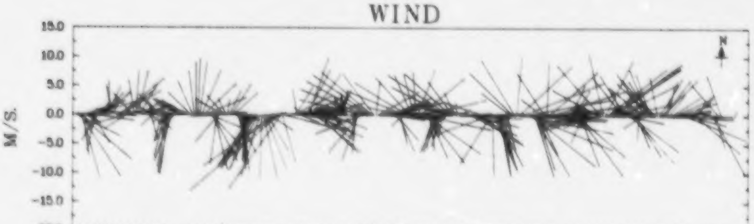

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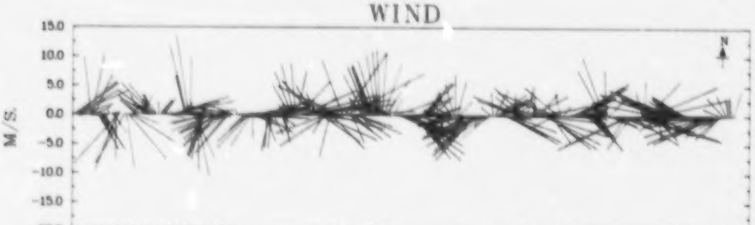

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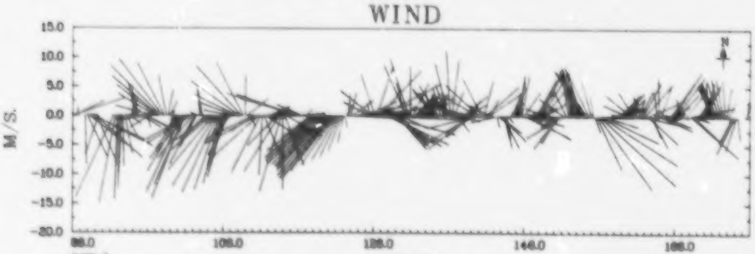

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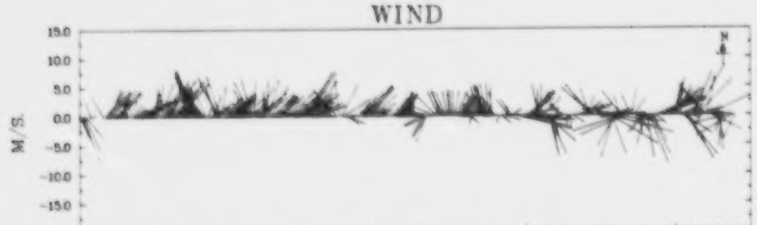

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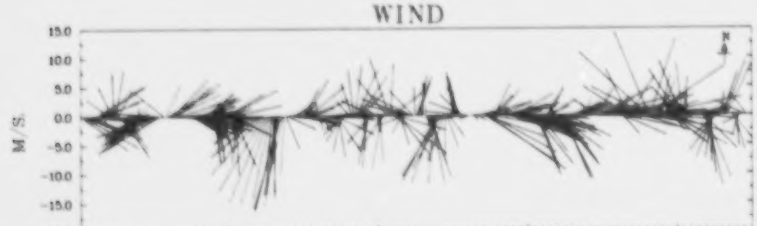

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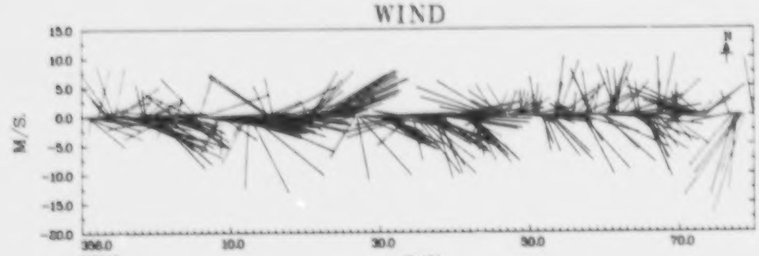

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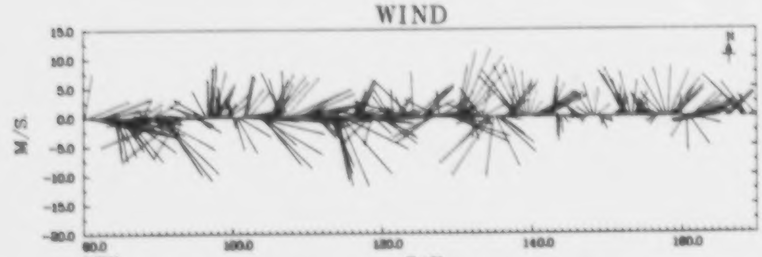

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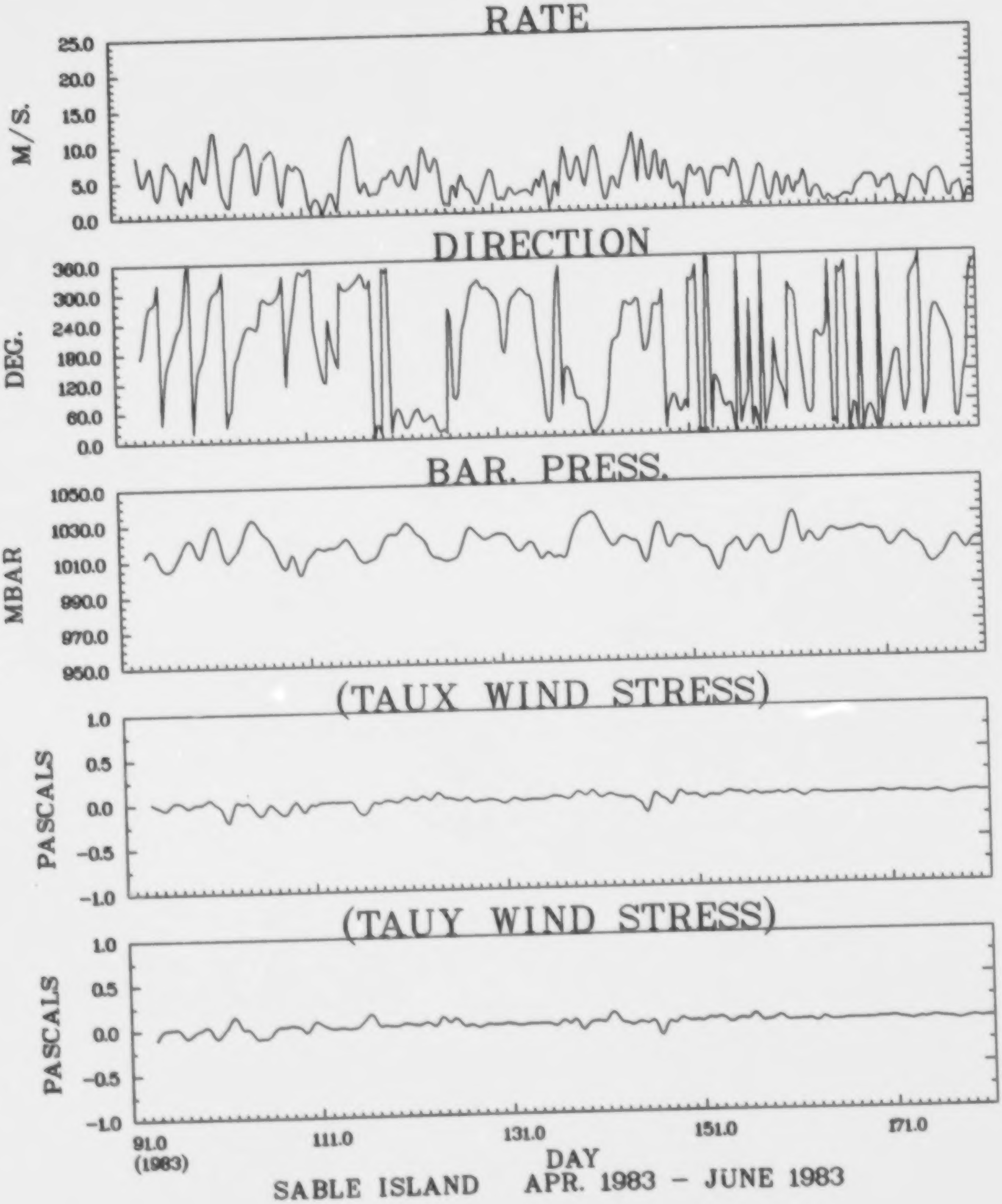

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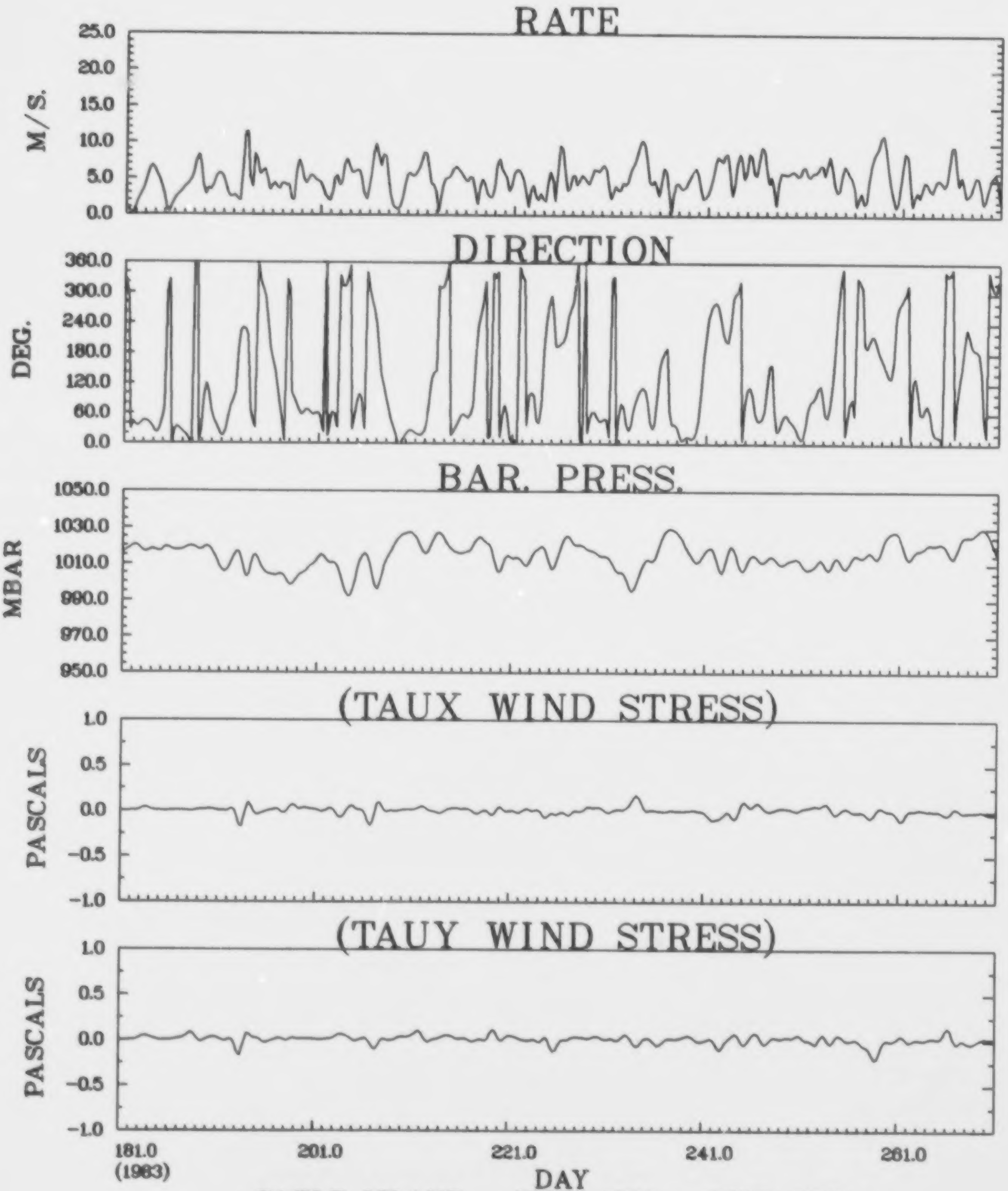

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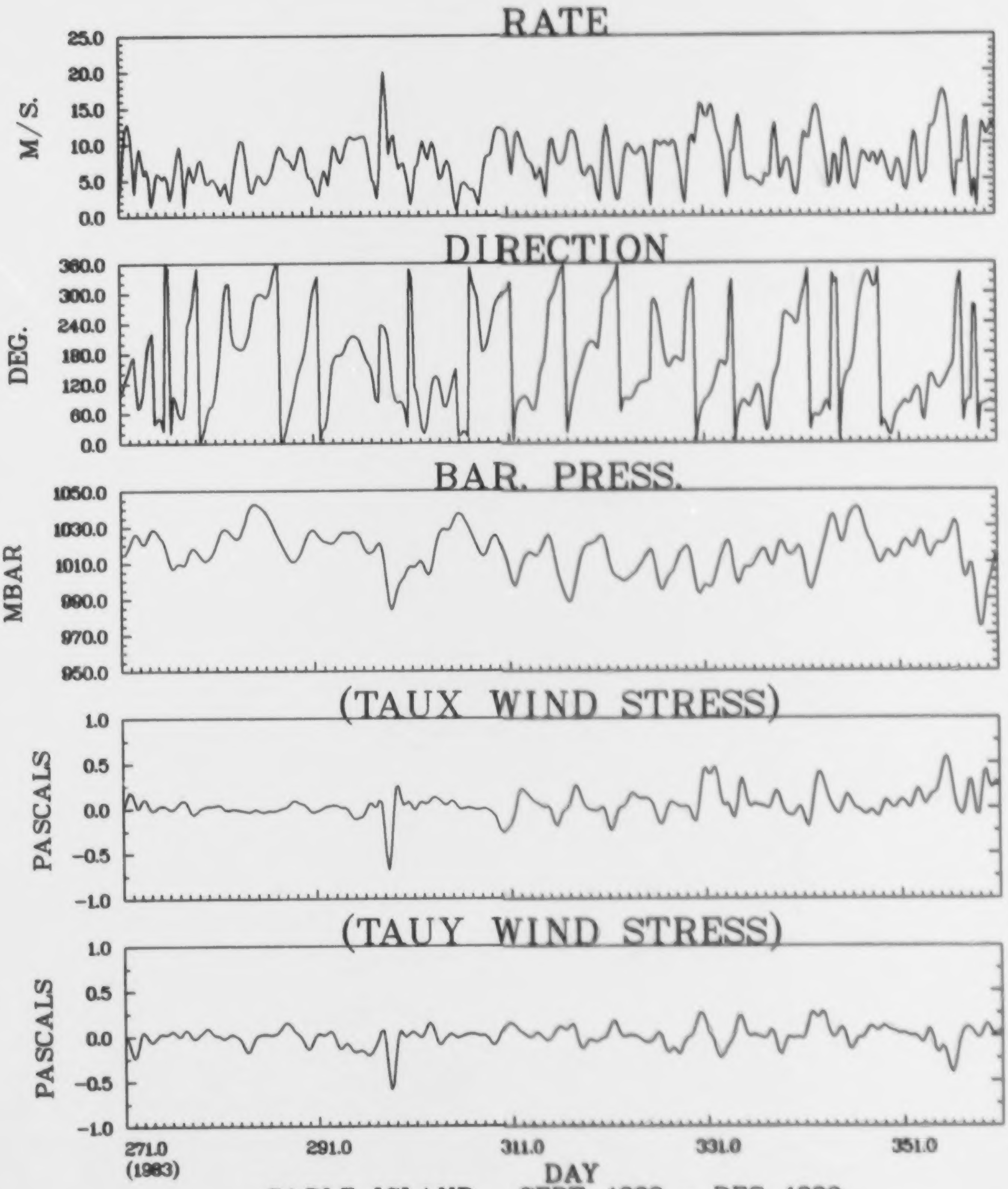

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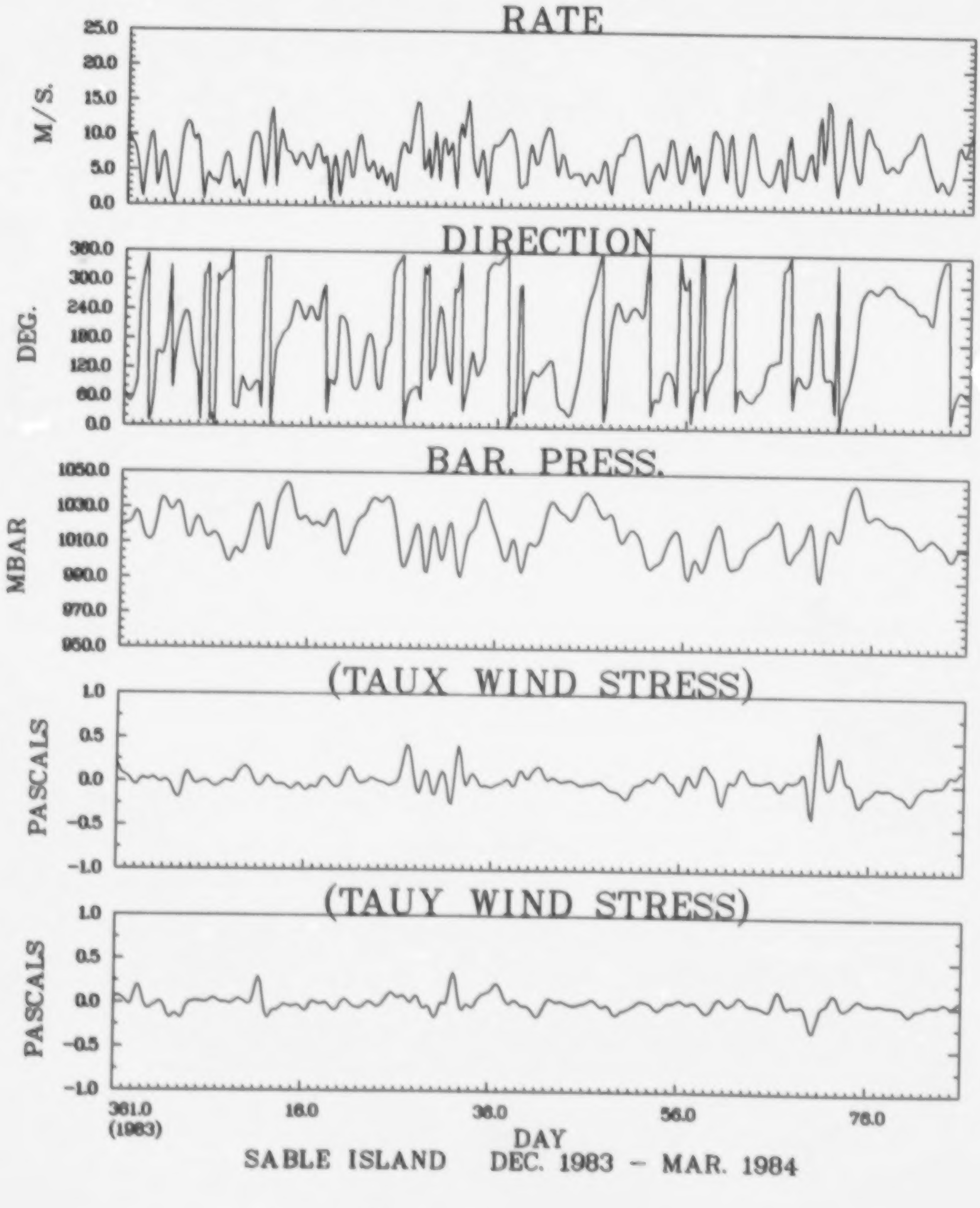

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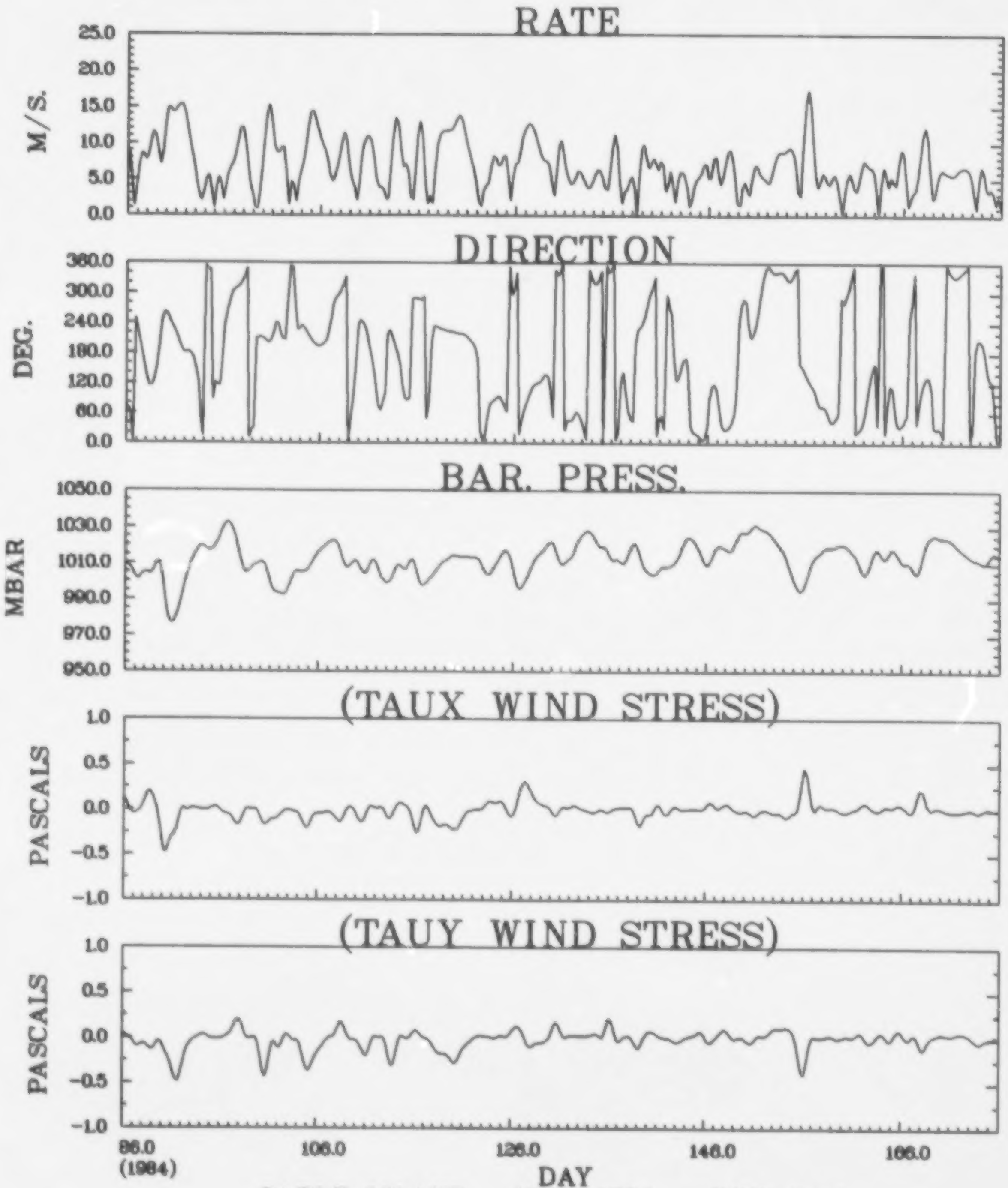

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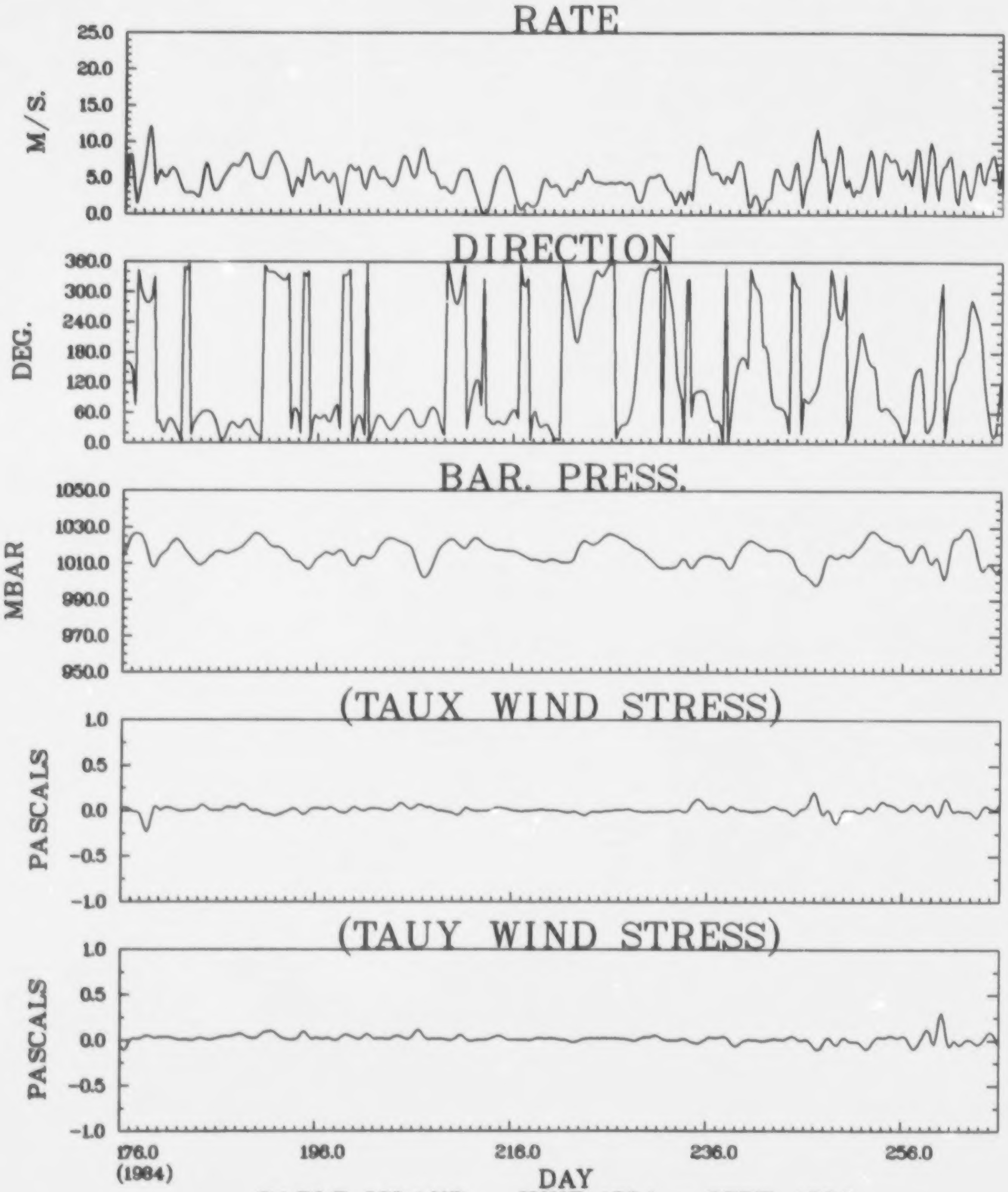

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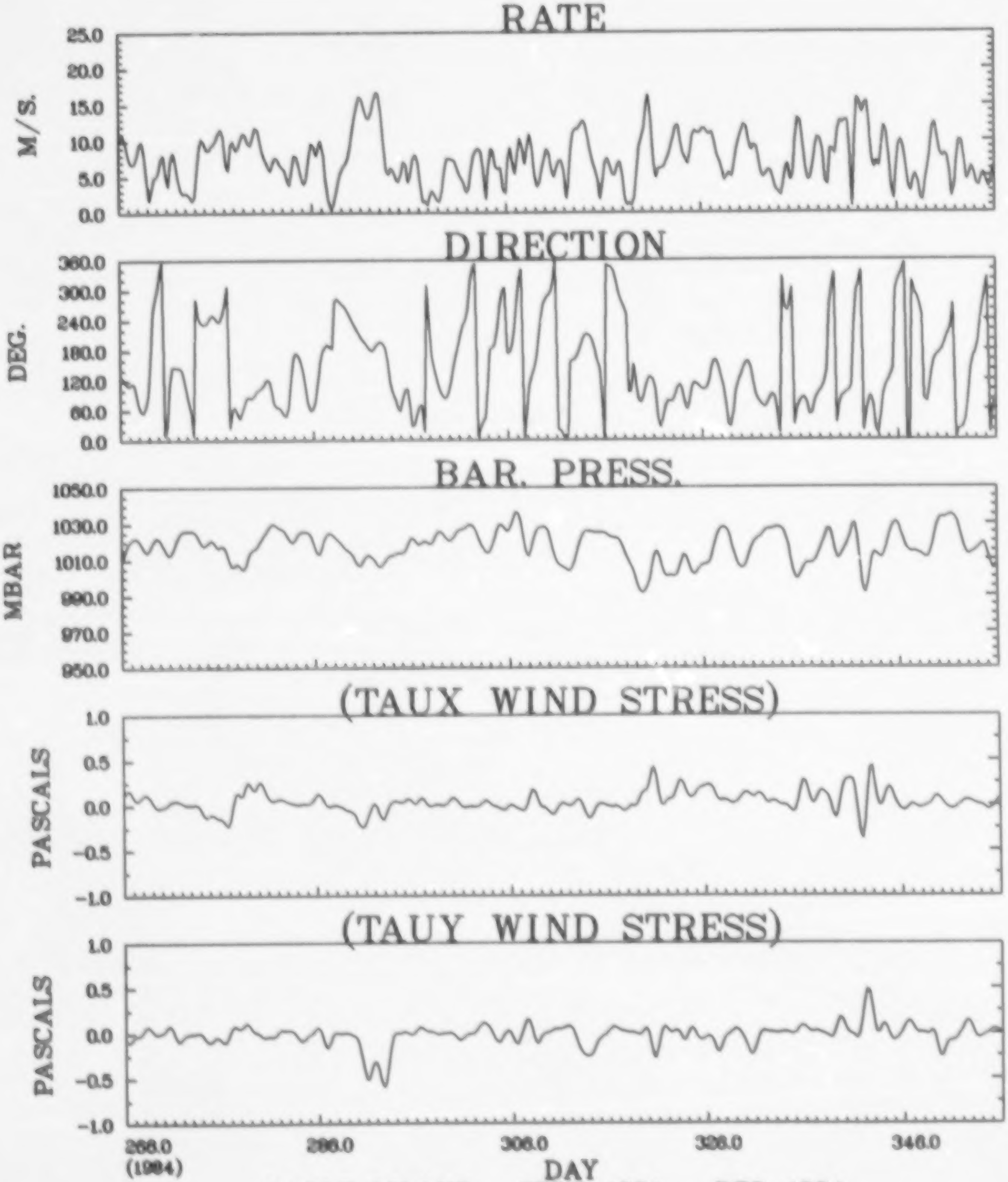

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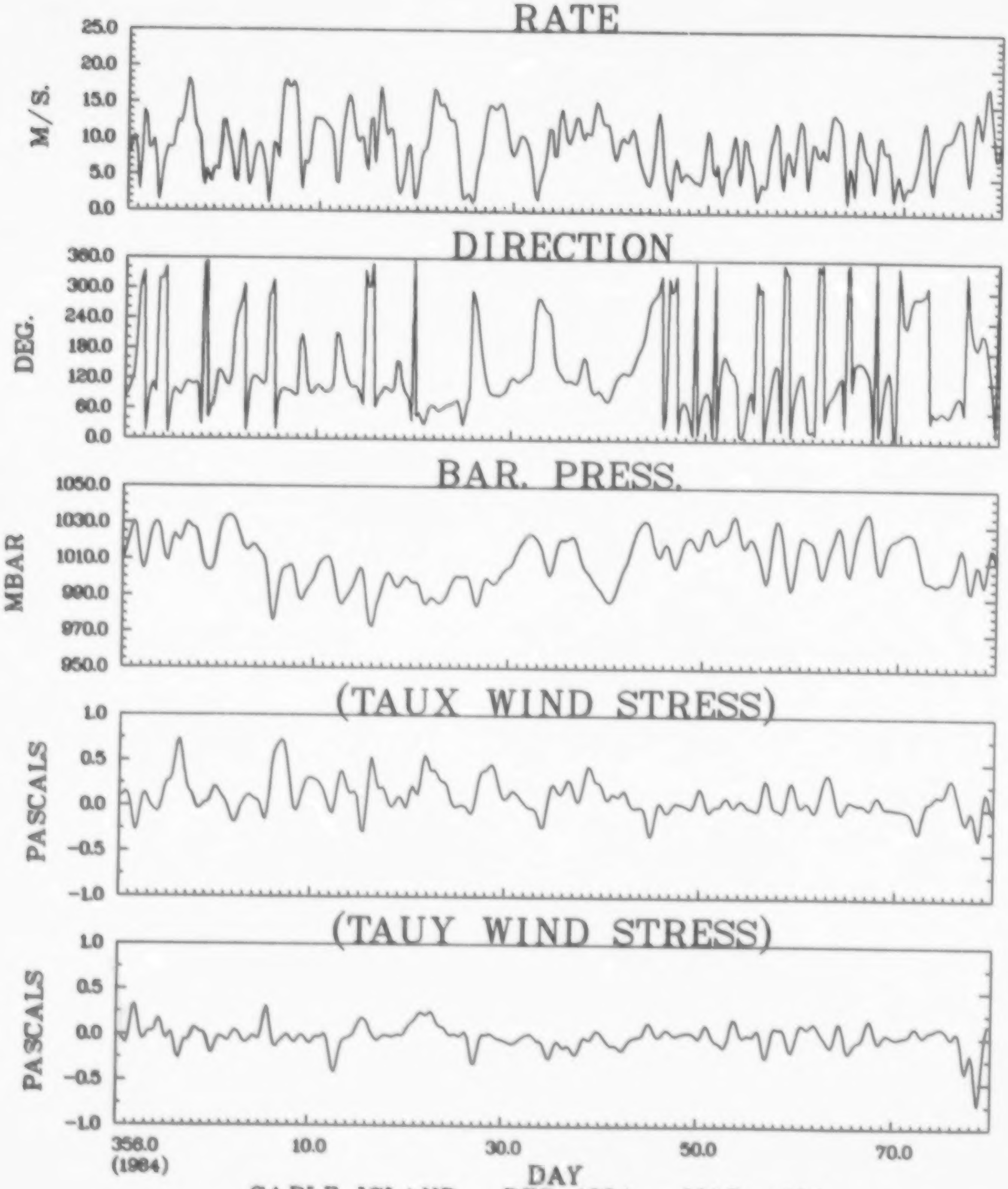

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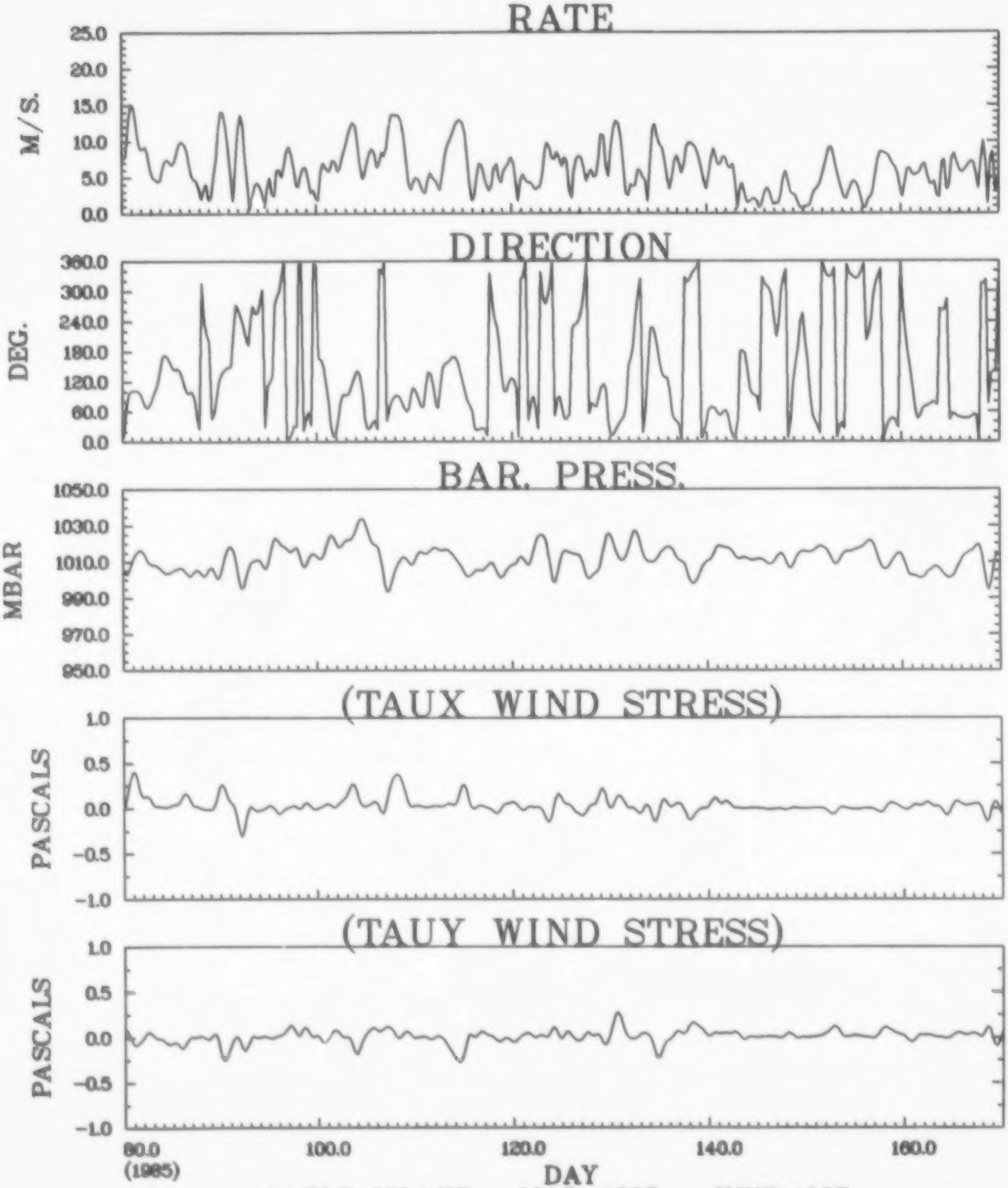

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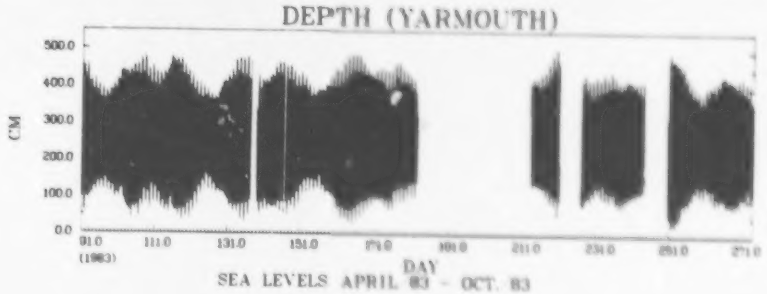
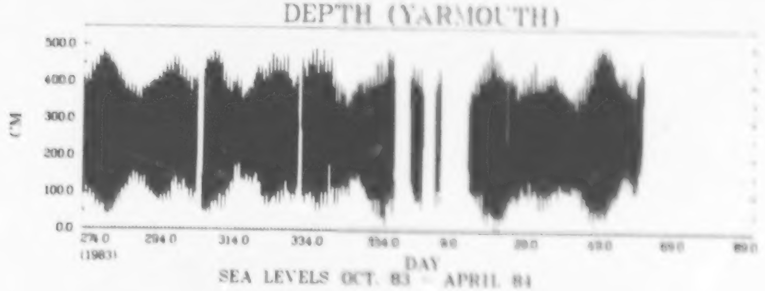
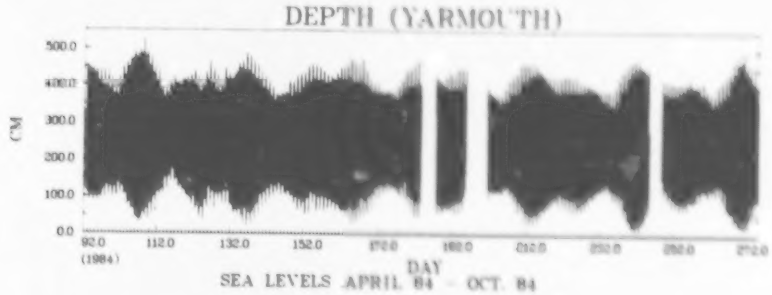


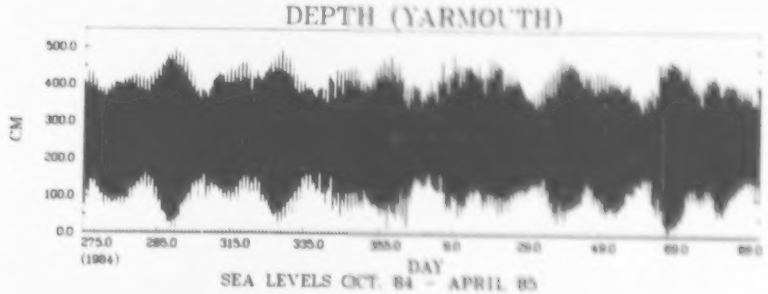
SEA LEVELS APRIL 83 - OCT. 83



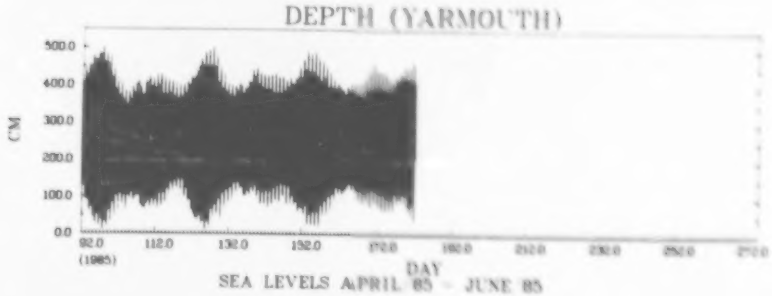
SEA LEVELS OCT. 83 - APRIL 84



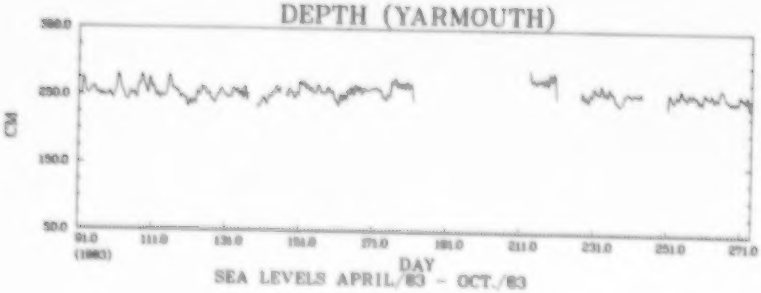
SEA LEVELS APRIL 84 - OCT. 84



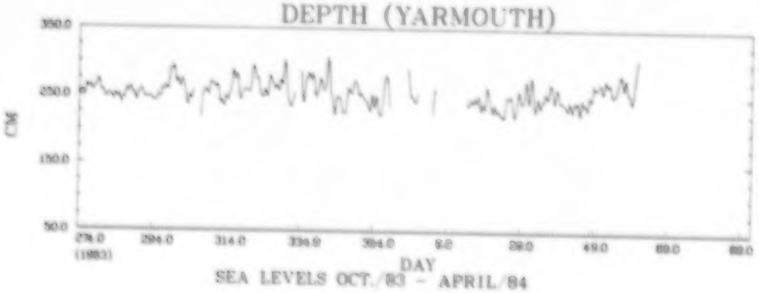
SEA LEVELS OCT. 84 - APRIL 85



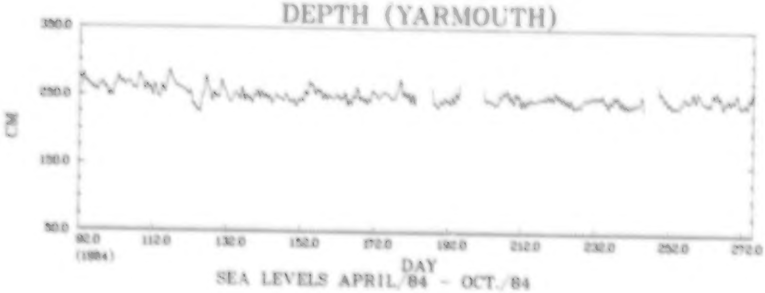
SEA LEVELS APRIL 85 - JUNE 85



SEA LEVELS APRIL/83 - OCT./83



SEA LEVELS OCT./83 - APRIL/84



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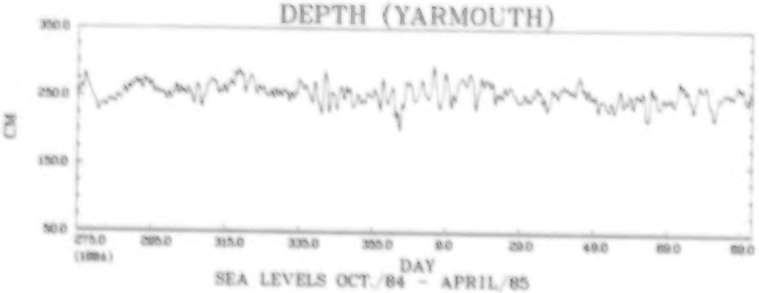
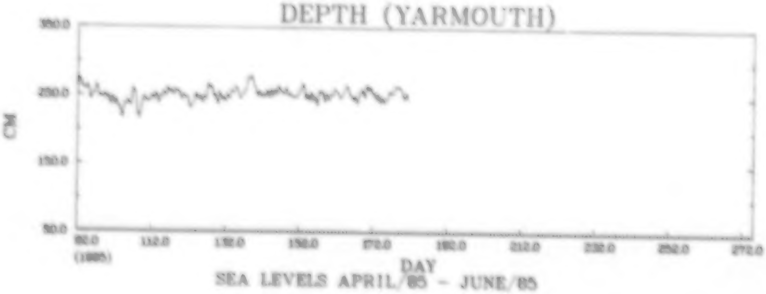
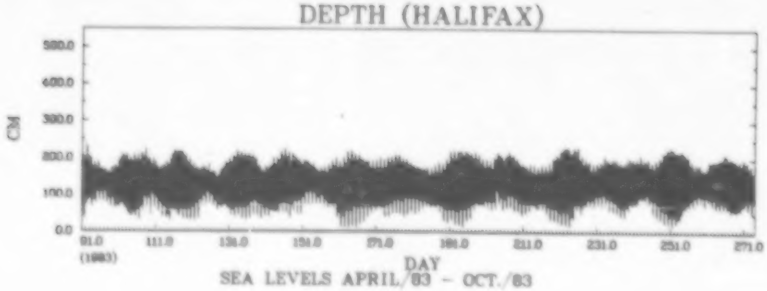


SEA LEVELS OCT./84 - APRIL/85



SEA LEVELS APRIL/85 - JUNE/85



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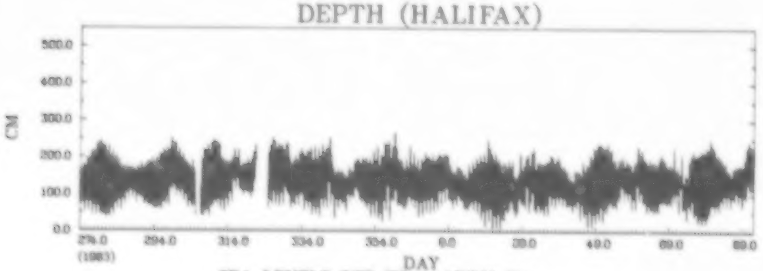
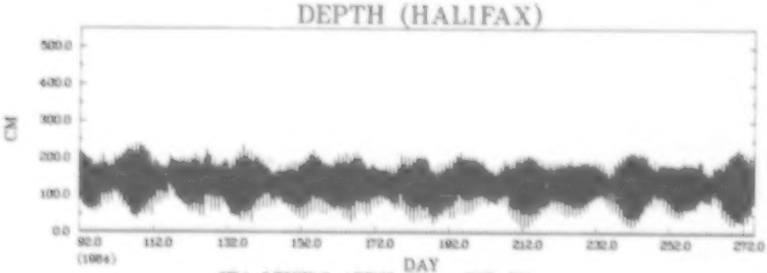
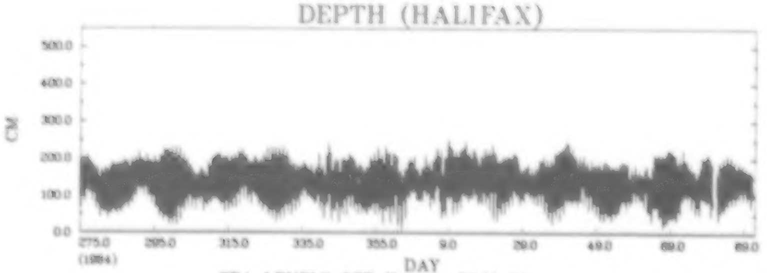


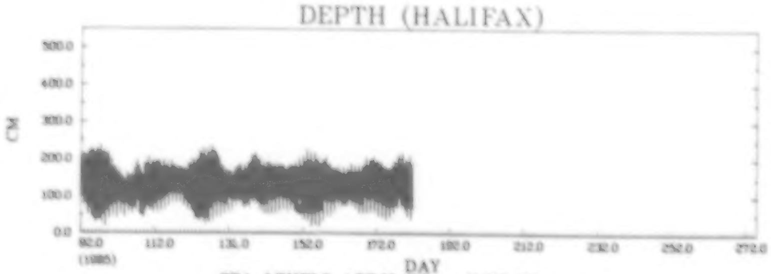
SEA LEVELS OCT./83 - APRIL/84



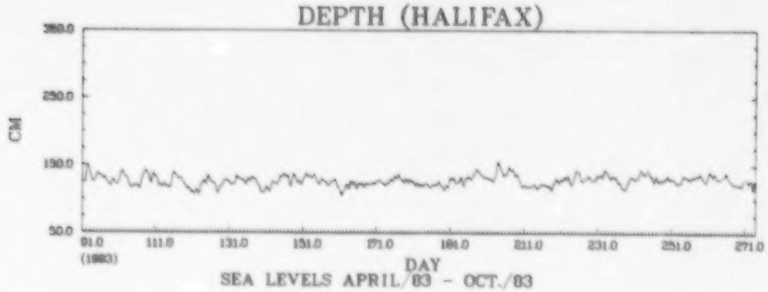
SEA LEVELS APRIL/84 - OCT./84



SEA LEVELS OCT./84 - APRIL/85



SEA LEVELS APRIL/85 - JUNE/85



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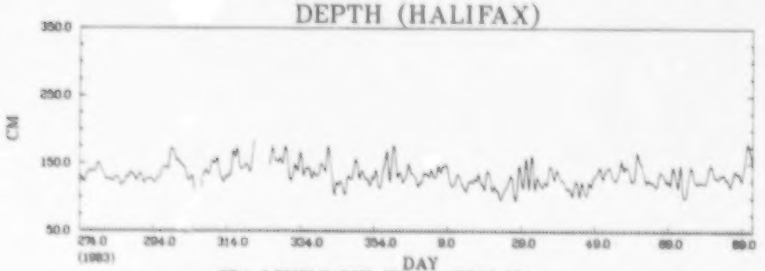

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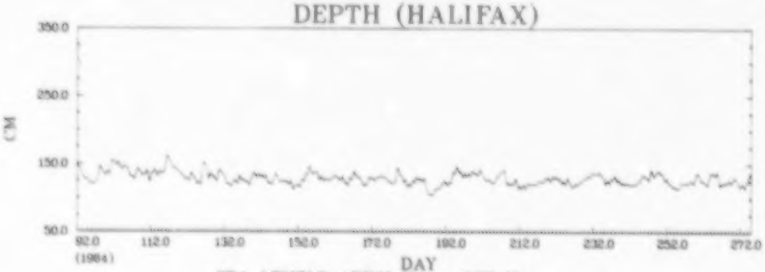

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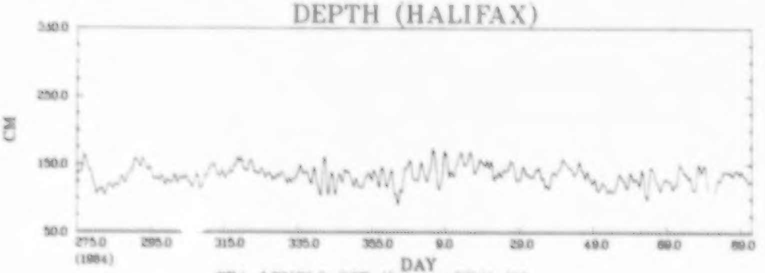
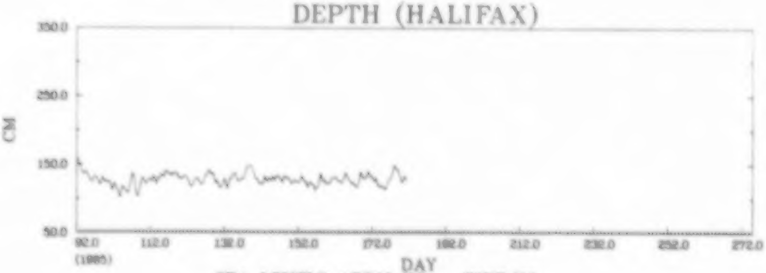
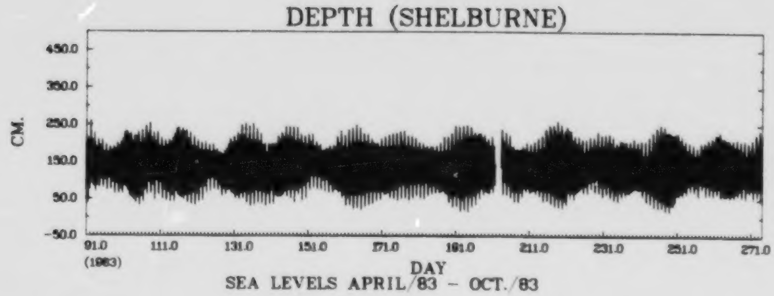


SEA LEVELS OCT./84 - APRIL/85



SEA LEVELS APRIL/85 - JUNE/85



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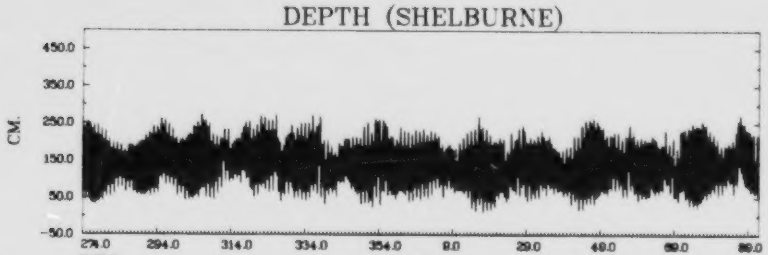

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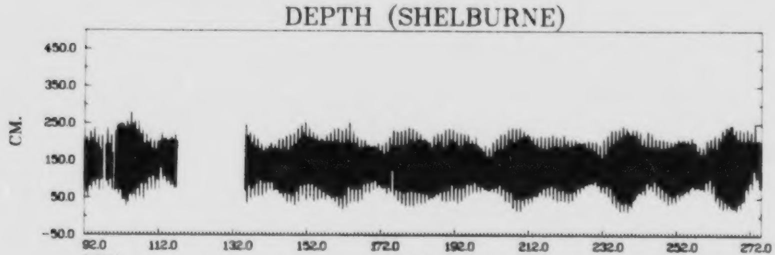

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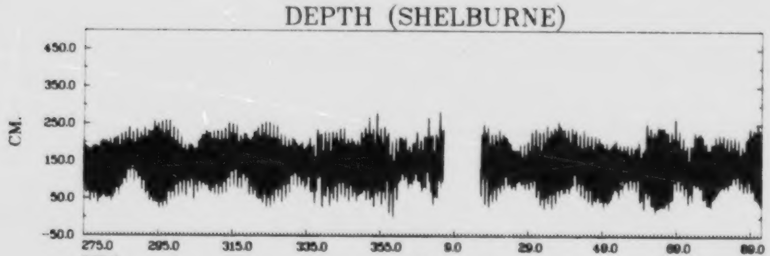

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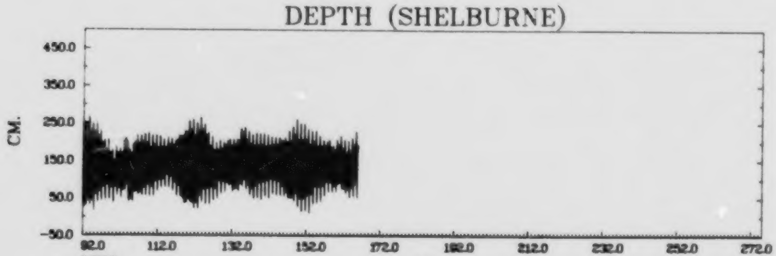

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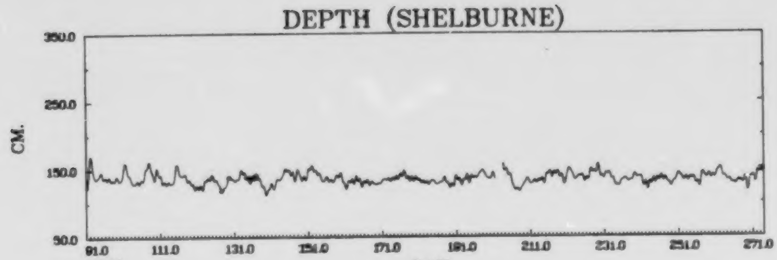

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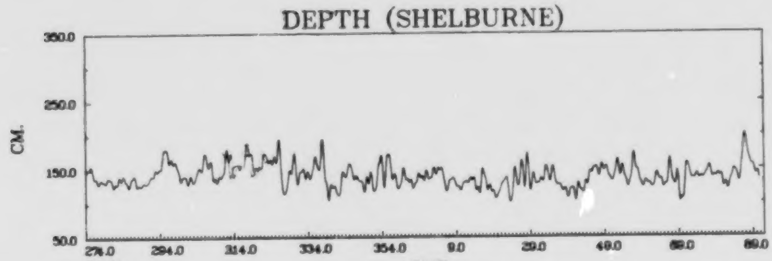

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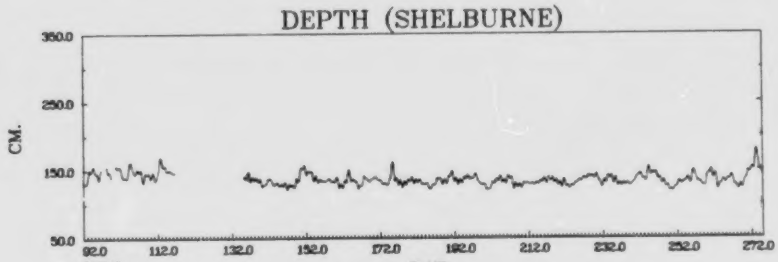

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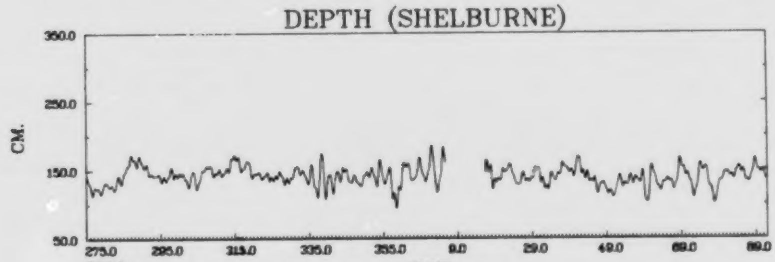

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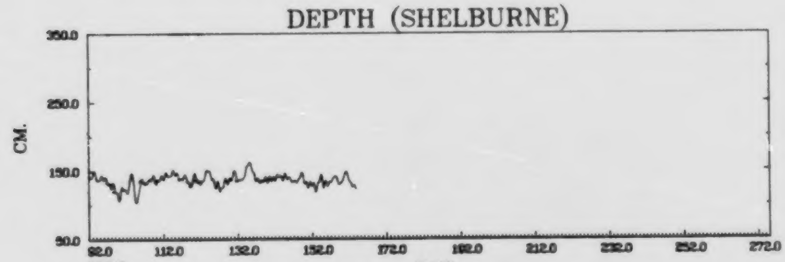
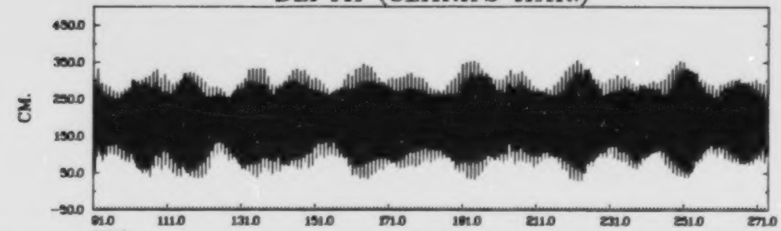


SEA LEVELS APRIL/85 – JUNE/85

DEPTH (CLARK'S HAR.)



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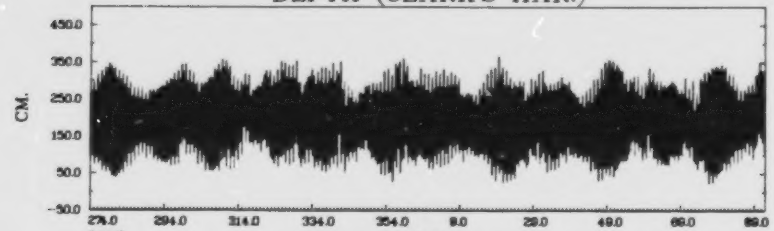
DEPTH (CLARK'S HAR.)



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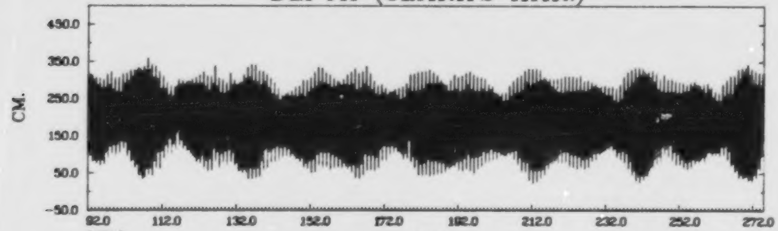

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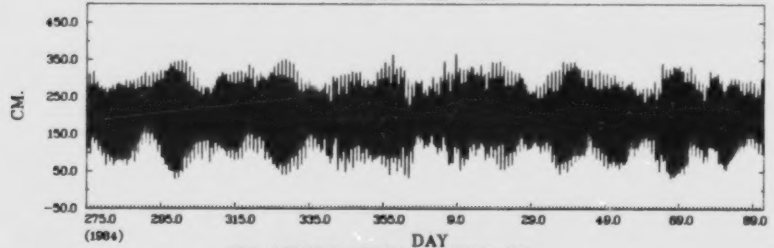
SEA LEVEL



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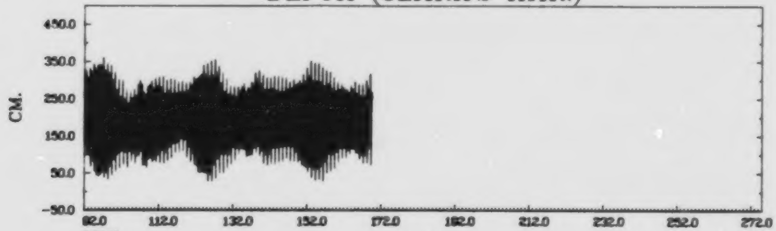

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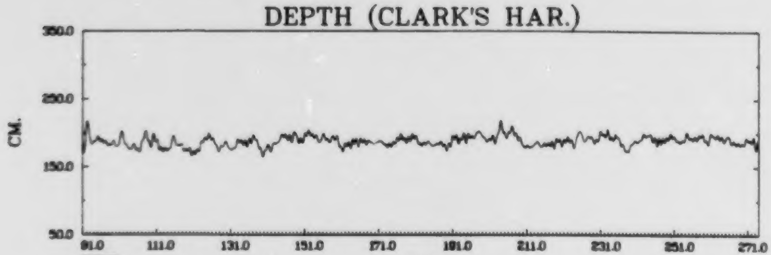

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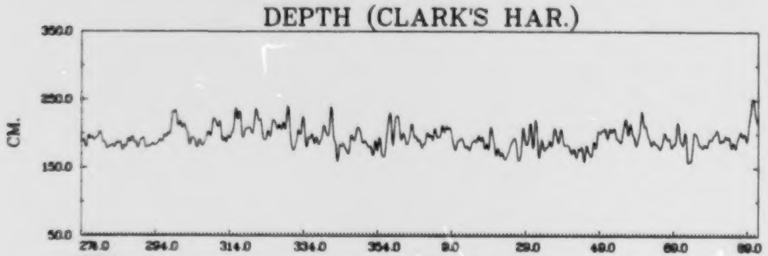

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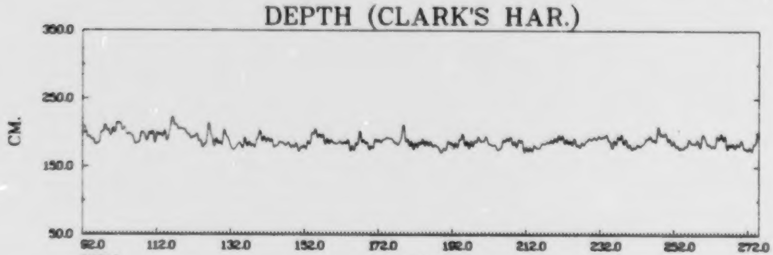

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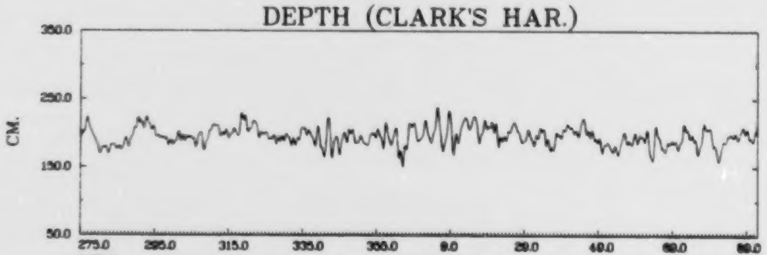
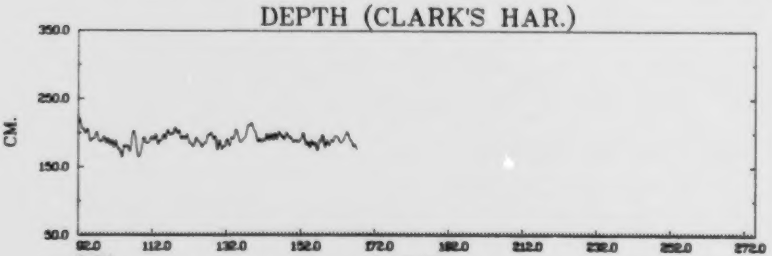


SEA LEVELS OCT./84 - APRIL/85



SEA LEVELS APRIL/85 - JUNE/85

TABLE 10

MOORING SUMMARY CRUISE 83-001

SITE/ STATION	DEPTH (M)	SOUNDING (M)	LATITUDE (NORTH)	LONGITUDE (WEST)	INST. NO.	TYPE*	START DATE	END DATE	COMMENTS
C2/553	16	111	43°02.93'	65°45.71'	5577	AAND	08/04/83	09/11/83	Rotor stopped by hairy marine growth (day 258 to end), salinity appears to be low at end, SCM-SCTD is -1.4 (post cruise cal.); SCM-SBIO was -.71 PPT (in situ); -.46 PPT (clean).
	50	110	43°02.93'	65°45.49'	5002	AAND	08/04/83	09/11/83	Temperature & salinity noisy.
	100	110	43°02.93'	45°45.49'	5409	AAND	08/04/83	09/11/83	
	115	115	43°02.92'	65°45.82	336	ATG	08/04/83	09/11/83	
C3/554	15	110	42°51.64'	65°51.68'	4604	AAND	08/04/83	06/11/83	Rate was partially inhibited by marine growth (day 245 to end of record), rates were edited with predicted values for 6 hours on day 179, for 7.5 hours on days 182 and 190, for 18 hours on day 271, Temp. and Sal. were noisy towards the end of the record, salinity appears to decline near day 255 to the end of record (SCM-SCTD is .6).
	50	110	42°51.63'	65°51.92'	4350	AAND	08/04/83	06/11/83	Record was short 4 cycles with the aid of tidal predictions the four cycles were inserted at day 129, bad rates were edited using predicted values on days 191 to 194, salinity appears to decline towards end of the record (SCM-SCTD is -.8), lots of hairy growth partially inhibiting the rotor.
	100	110	42°51.63'	65°51.92'	4603	AAND	08/04/83	16/4/83	Tape stuck to the capstun, 186 cycles were deleted at the end because the data was too noisy.

TABLE 10 (Continued)

SITE/ STATION	DEPTH (M)	SOUNDING (M)	LATITUDE (NORTH)	LONGITUDE (WEST)	INST. NO.	TYPE*	START DATE	END DATE	COMMENTS
C9/555	14	54	42°46.36'	66°11.28'	245	VACM	07/04/83	03/07/83	Record was short by 2.25 hours, cycles were added using the predicted values for 1 hr on day 129, .5 hours on day 130, .5 hours on day 132, .25 hours on day 161, after day 184 vain was sticking from heavy marine growth.
	39	54	42°46.29'	66°11.36'	818	AAND	07/04/83	03/11/83	Heavy marine growth, salinity goes bad from day 233 to the end (SCM-SCTD was -7.0)
C10/556	16	71	42°48.52'	66°02.07'	4208	AAND	07/04/83	06/11/83	Direction was bad, meter fouled with poly rope, spindle rod was bent, heavy marine growth, rate shows heavy fouling day 245 to day 295, temperature very noisy, salinity starts to decline about day 220 to the end (SCM-SCTD is -5.0).
	32	72	42°48.42'	66°01.89'	3302	AAND	07/04/83	06/11/83	Temperature and salinity noisy after day 179, salinity declines from day 200 to the end (SCM-SCTD is -.5), rotor partially inhibited by hairy marine growth, tidal analysis shows the start time is wrong by two hours or that the direction is off by 60°, but start time and direction calibrations agree with record logs, no corrections were made to the start time and directions.
	62	72	42°48.42'	66°01.89'	4195	AAND	07/04/83	06/11/83	Rotor lost when moored, salinity noisy especially after day 241, salinity decreases from day 200 to end of the record (SCM-SCTD is -.5).

*AAND = AANDERAA CURRENT METER, VACM = VECTOR AVERAGE CURRENT METER, ATG = AANDERAA TIDE GAUGE

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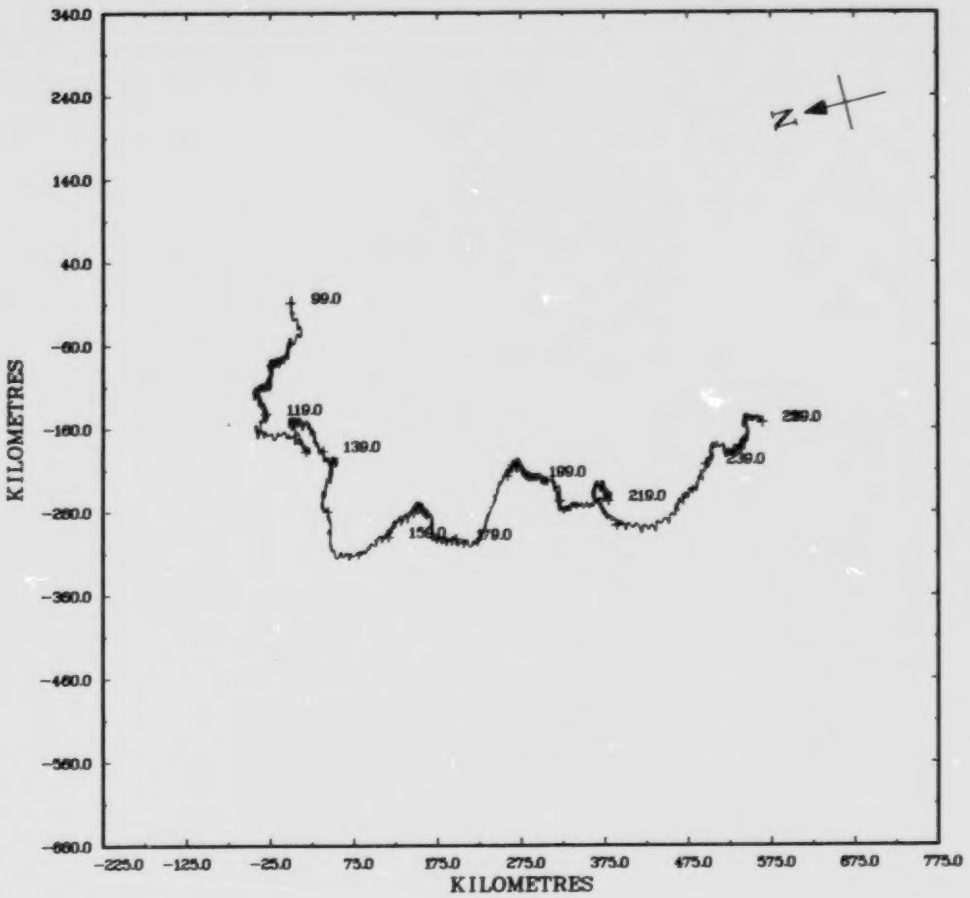

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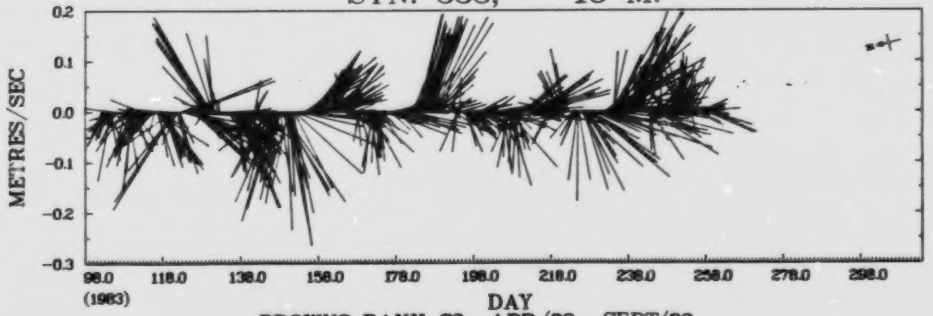

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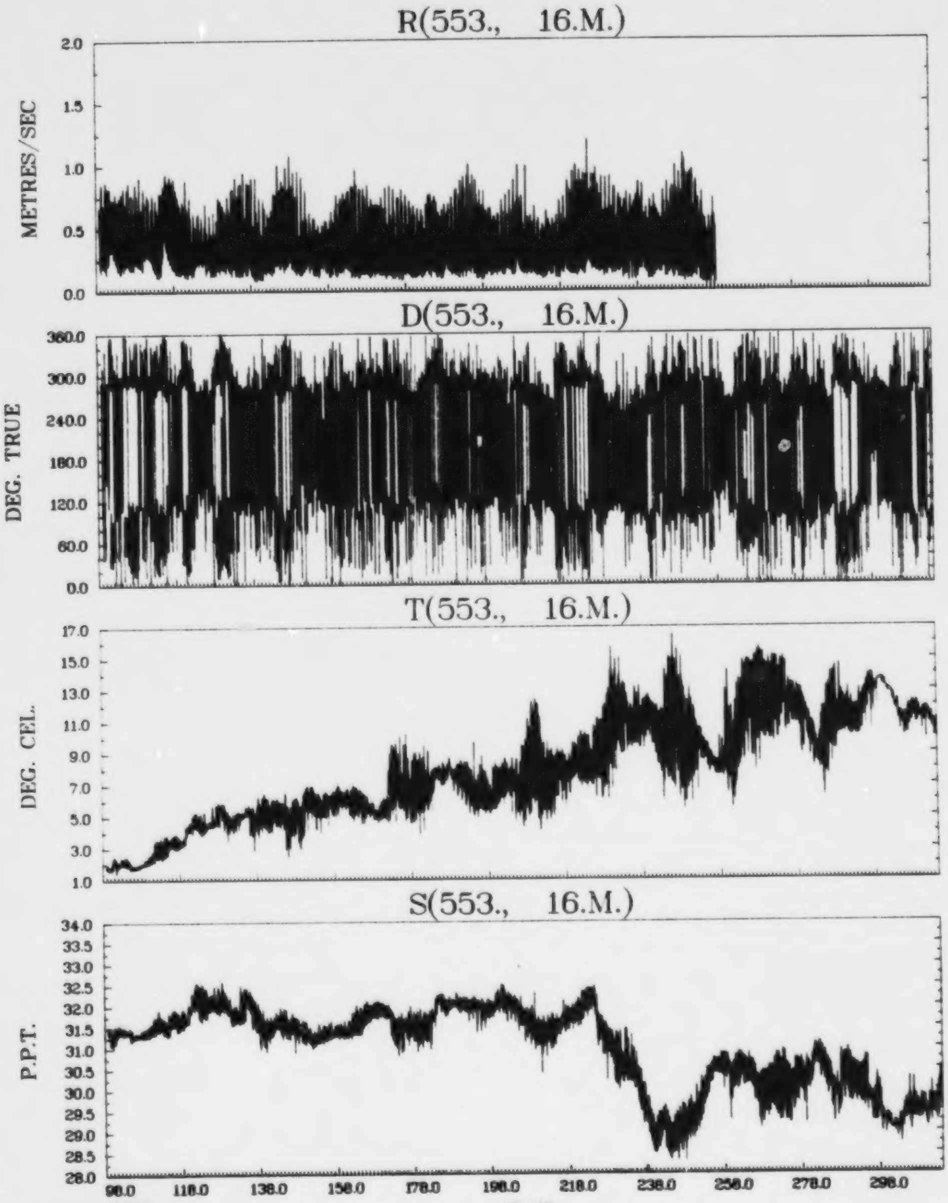

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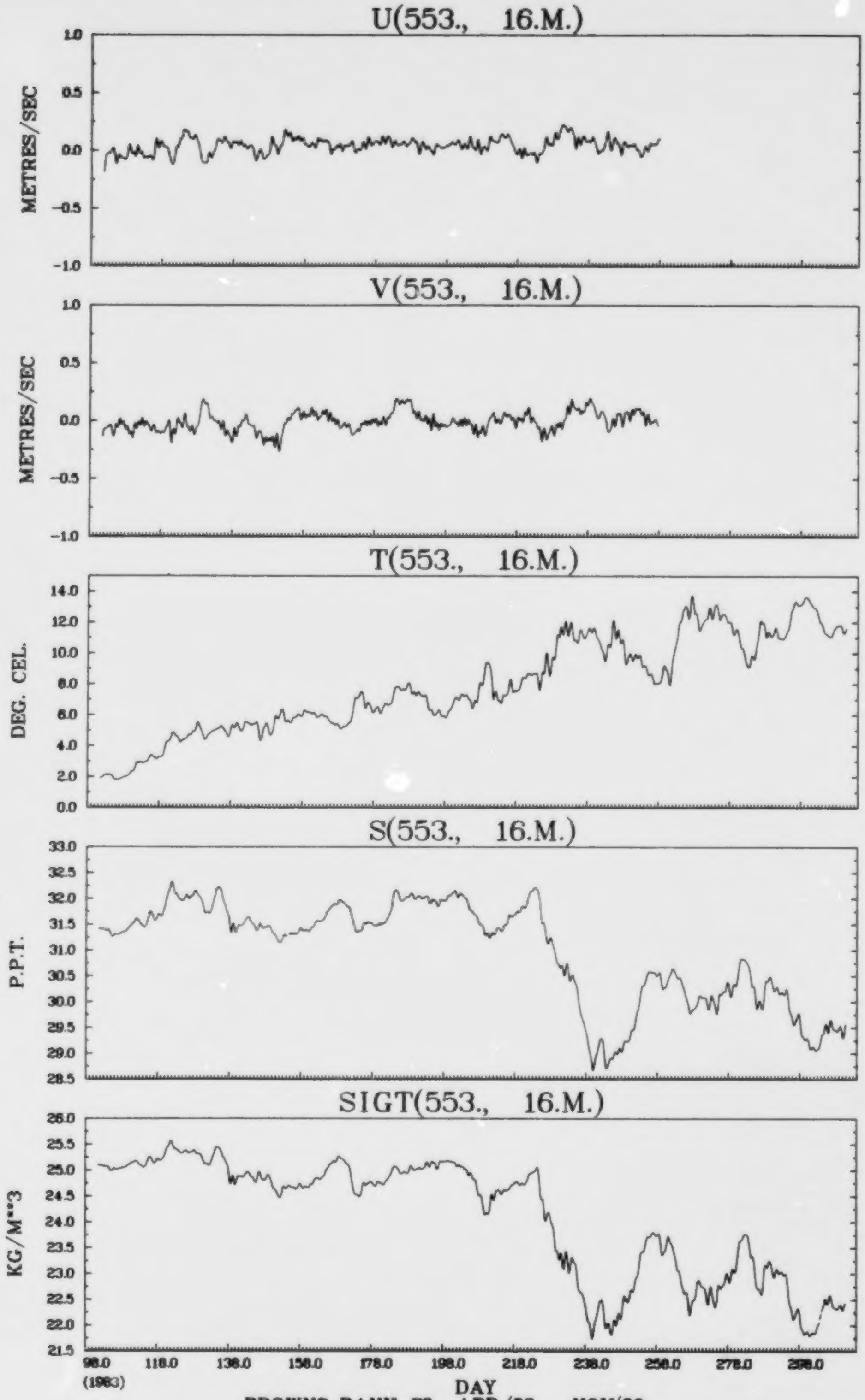

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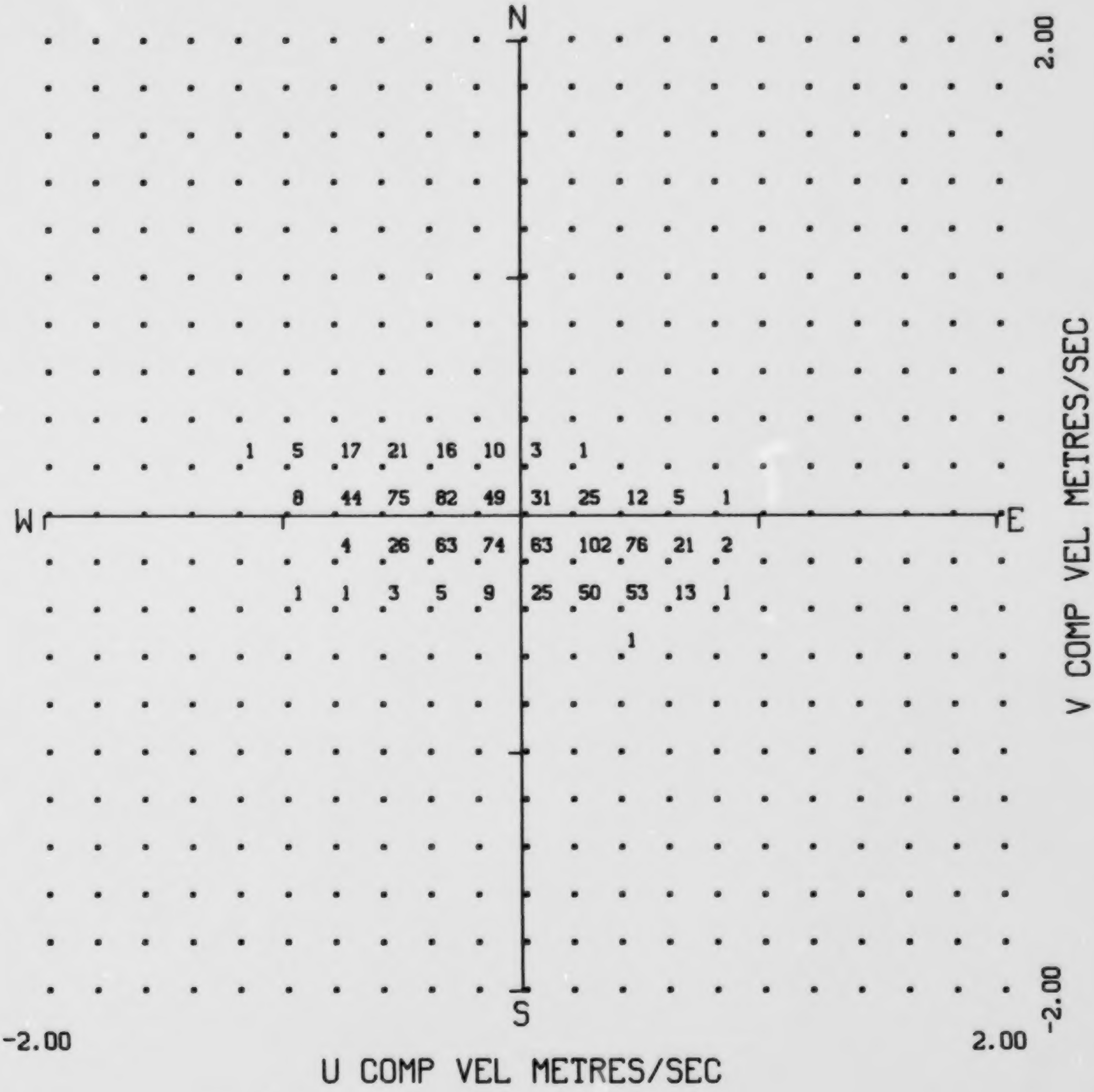

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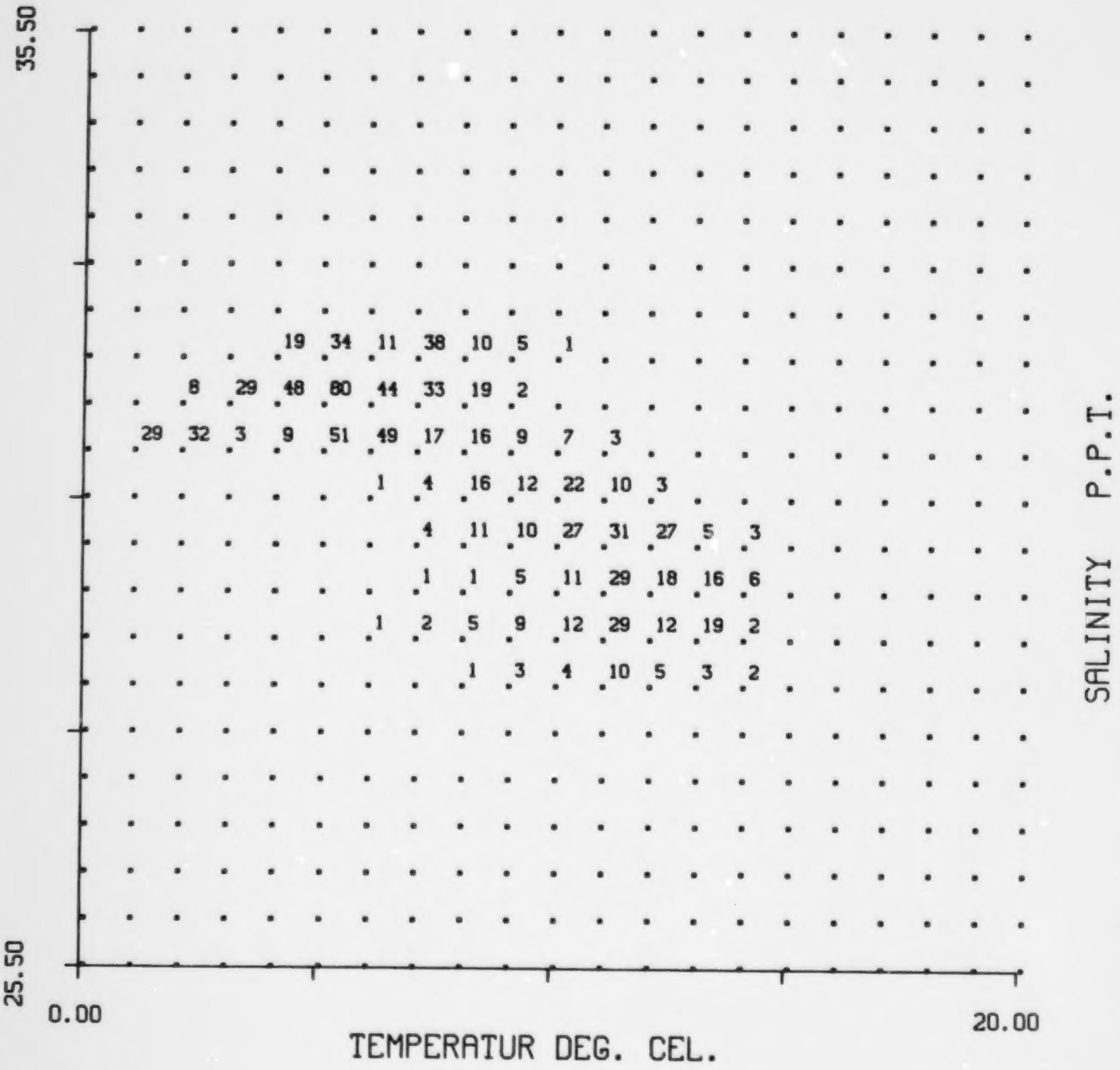

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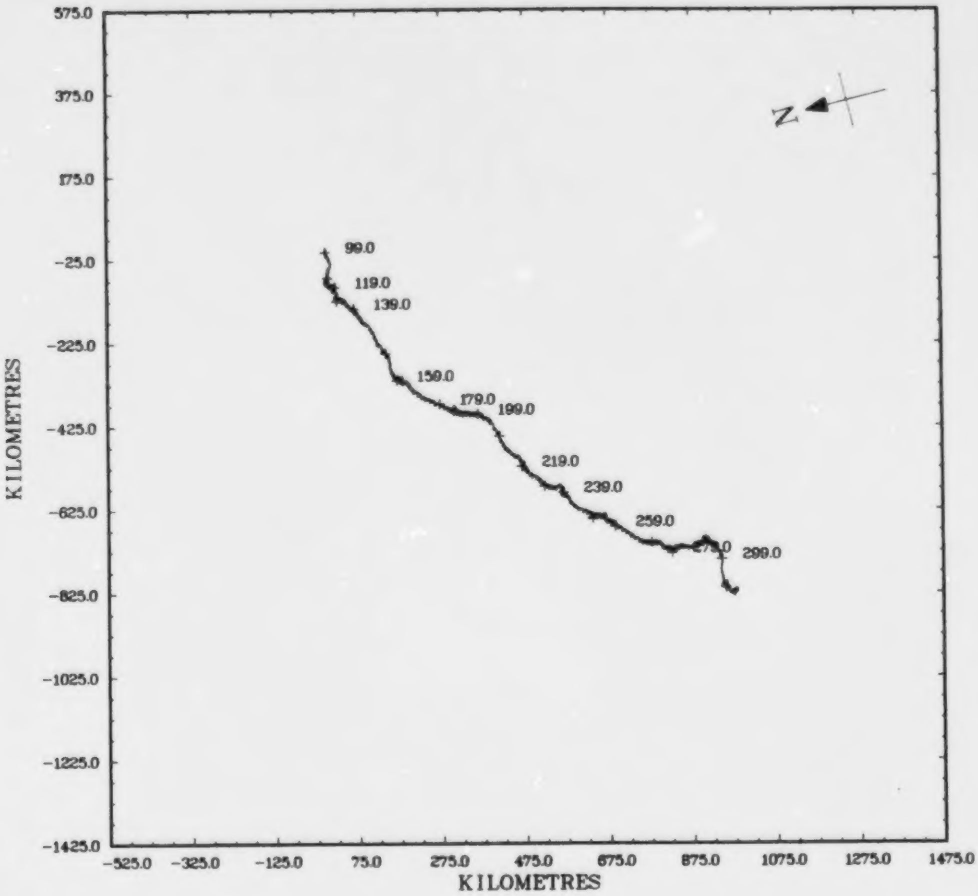

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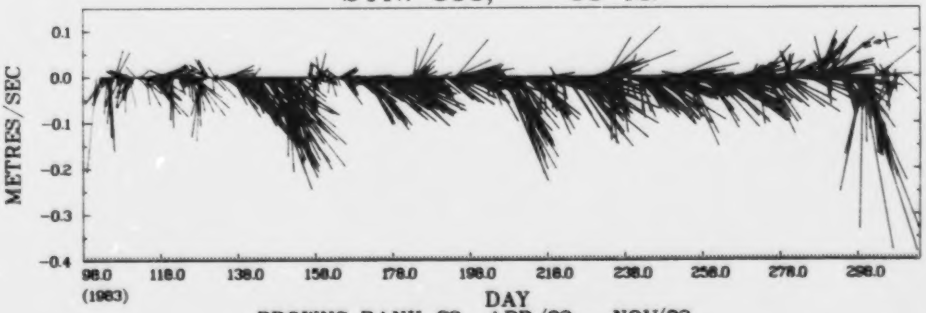

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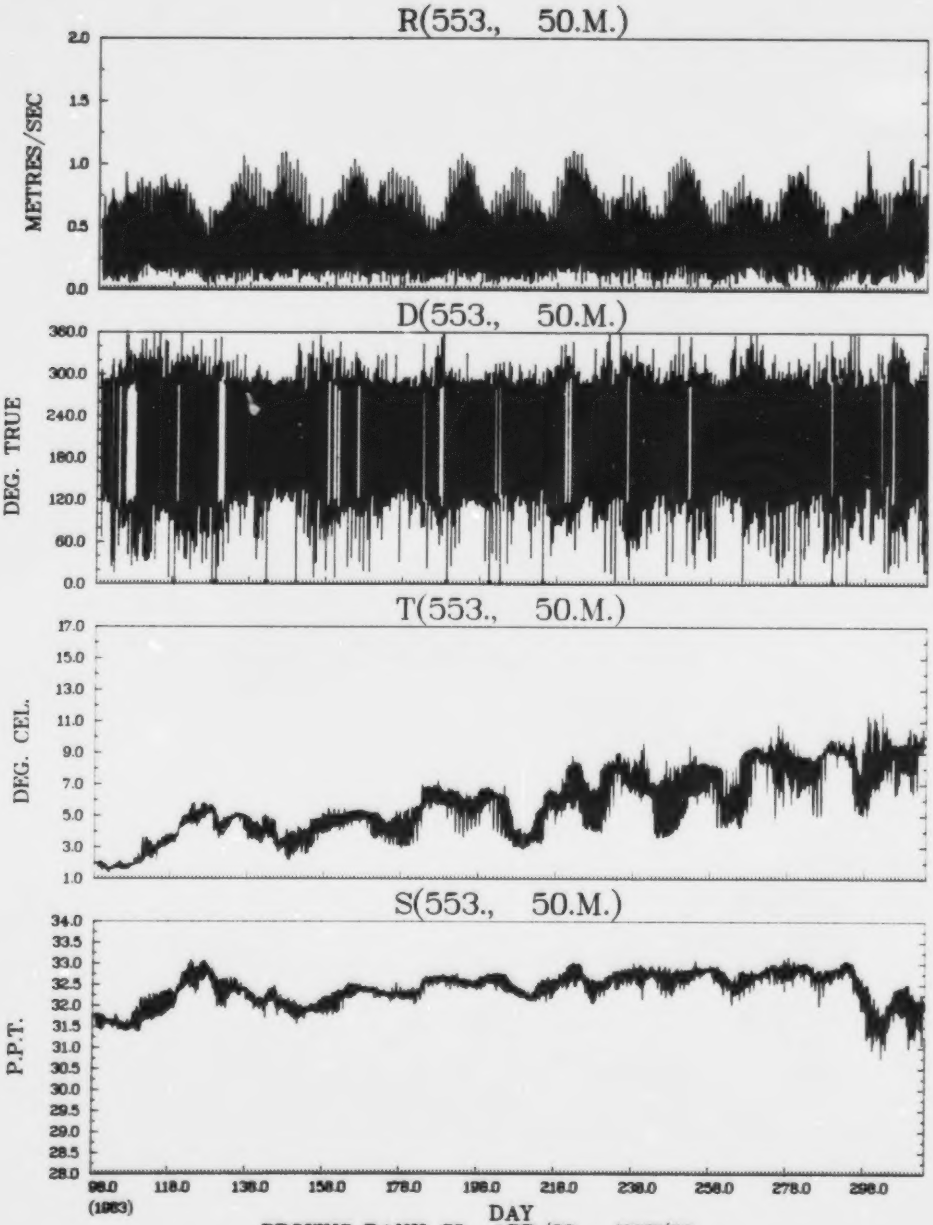

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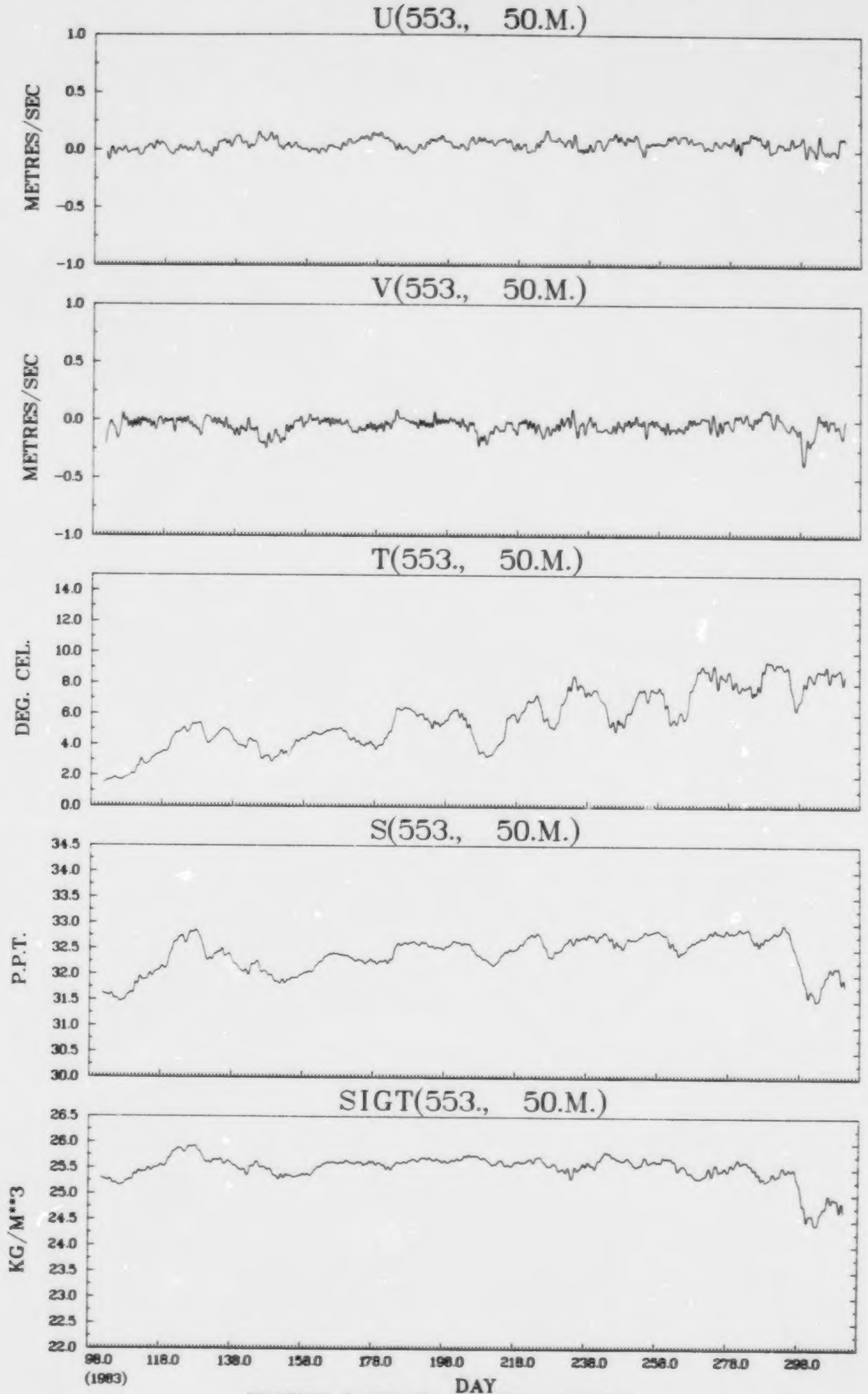

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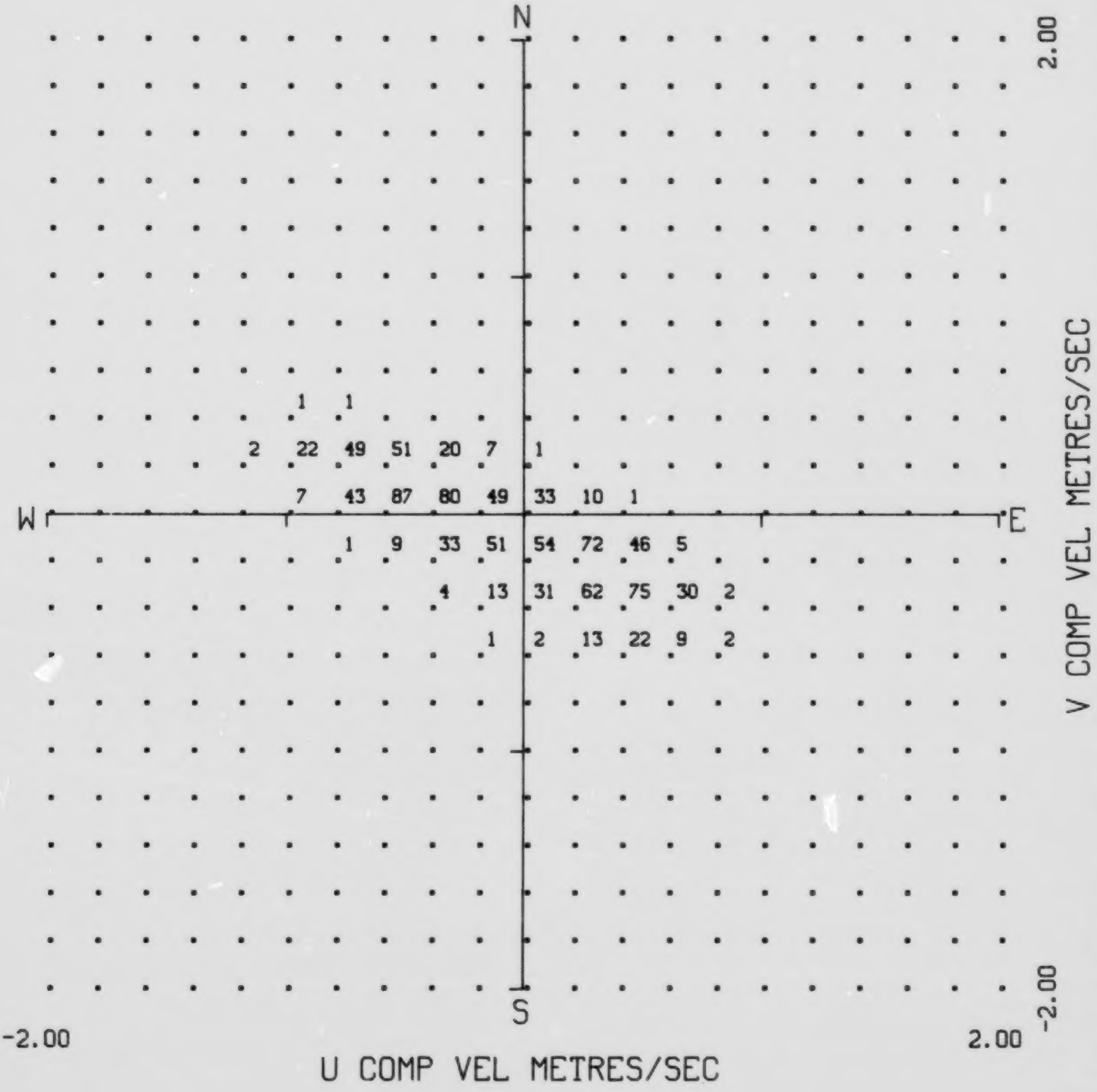

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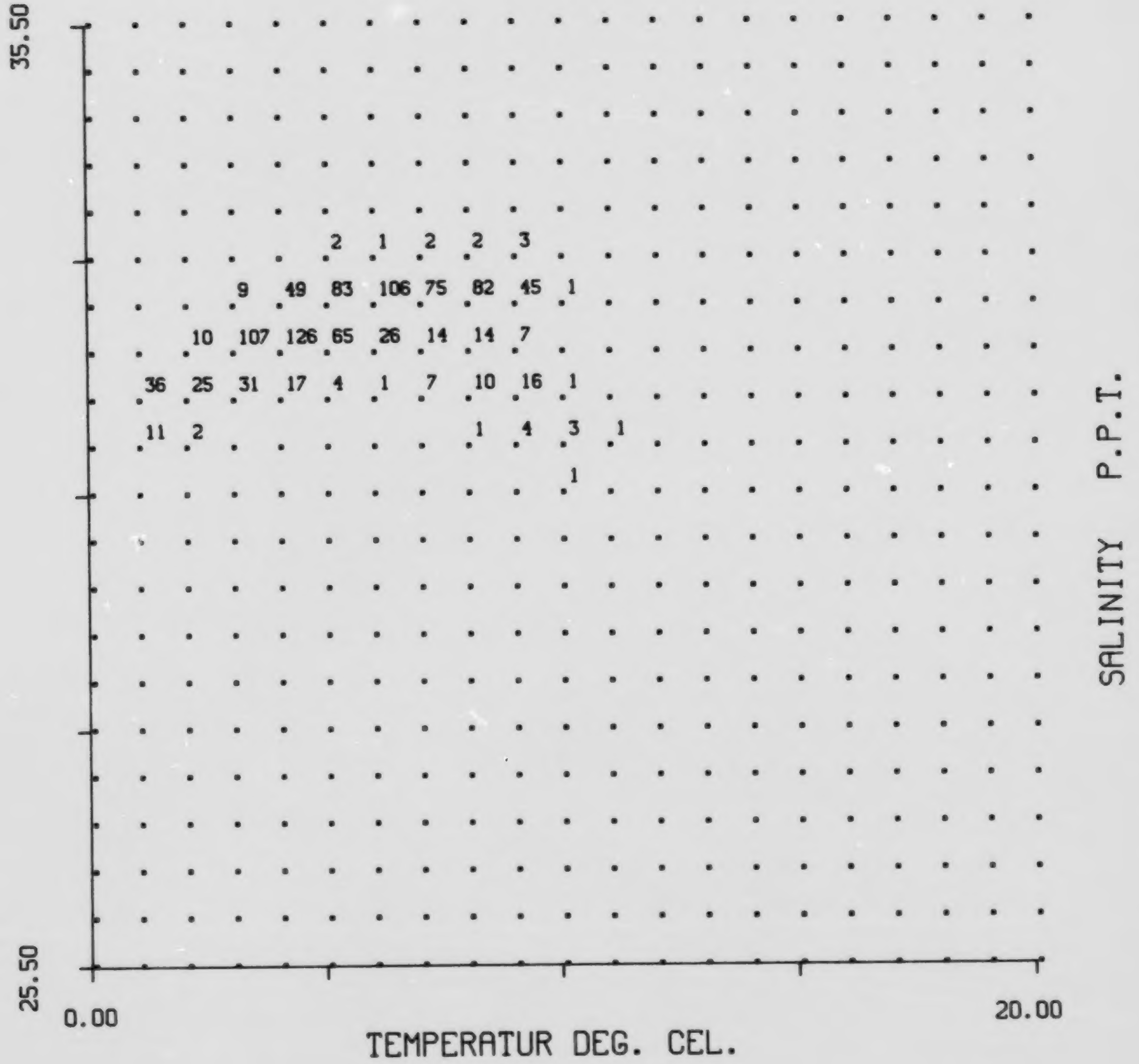

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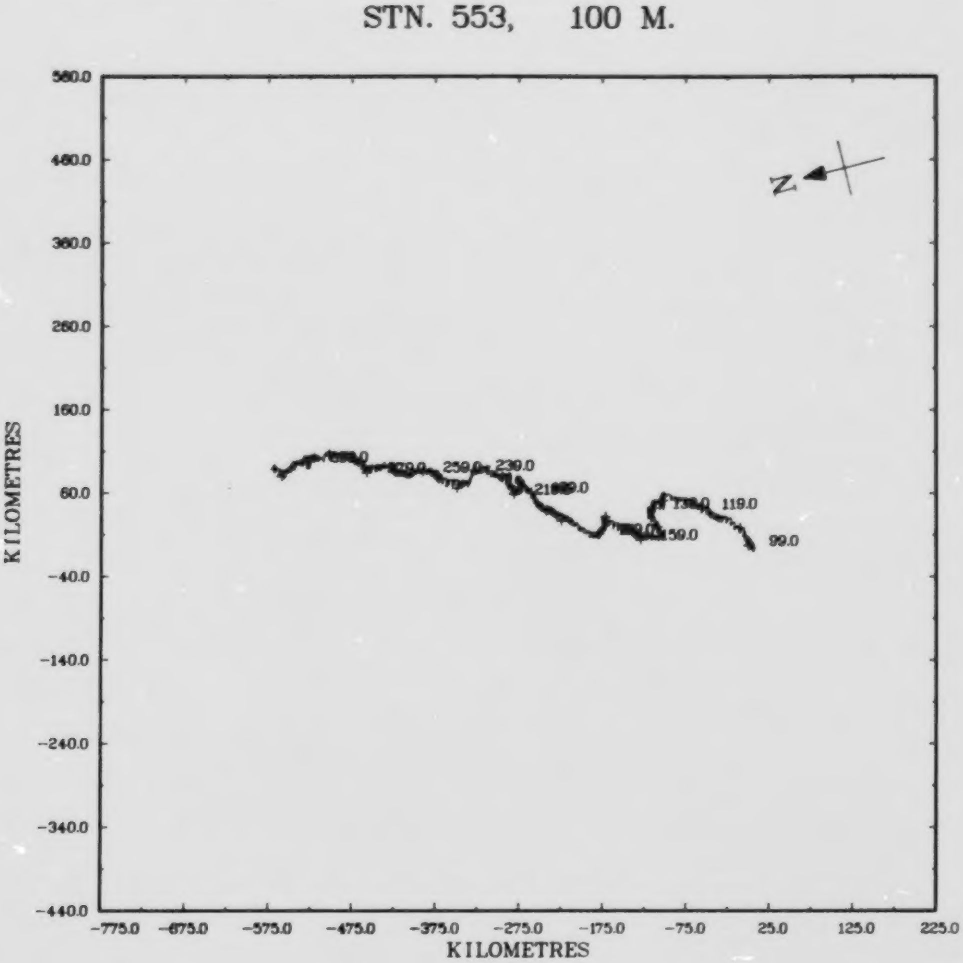

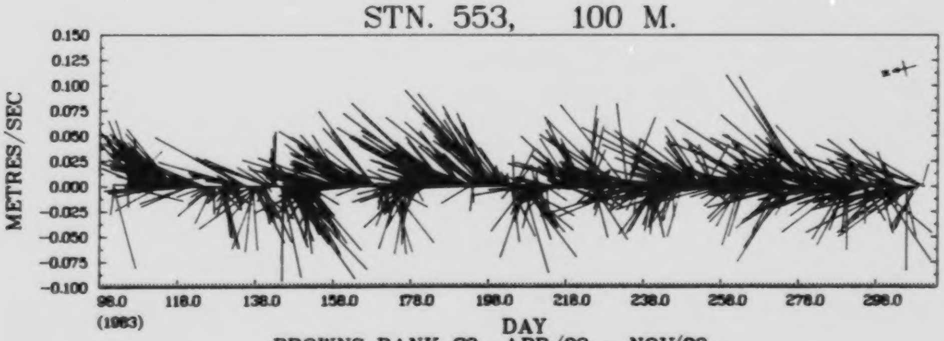

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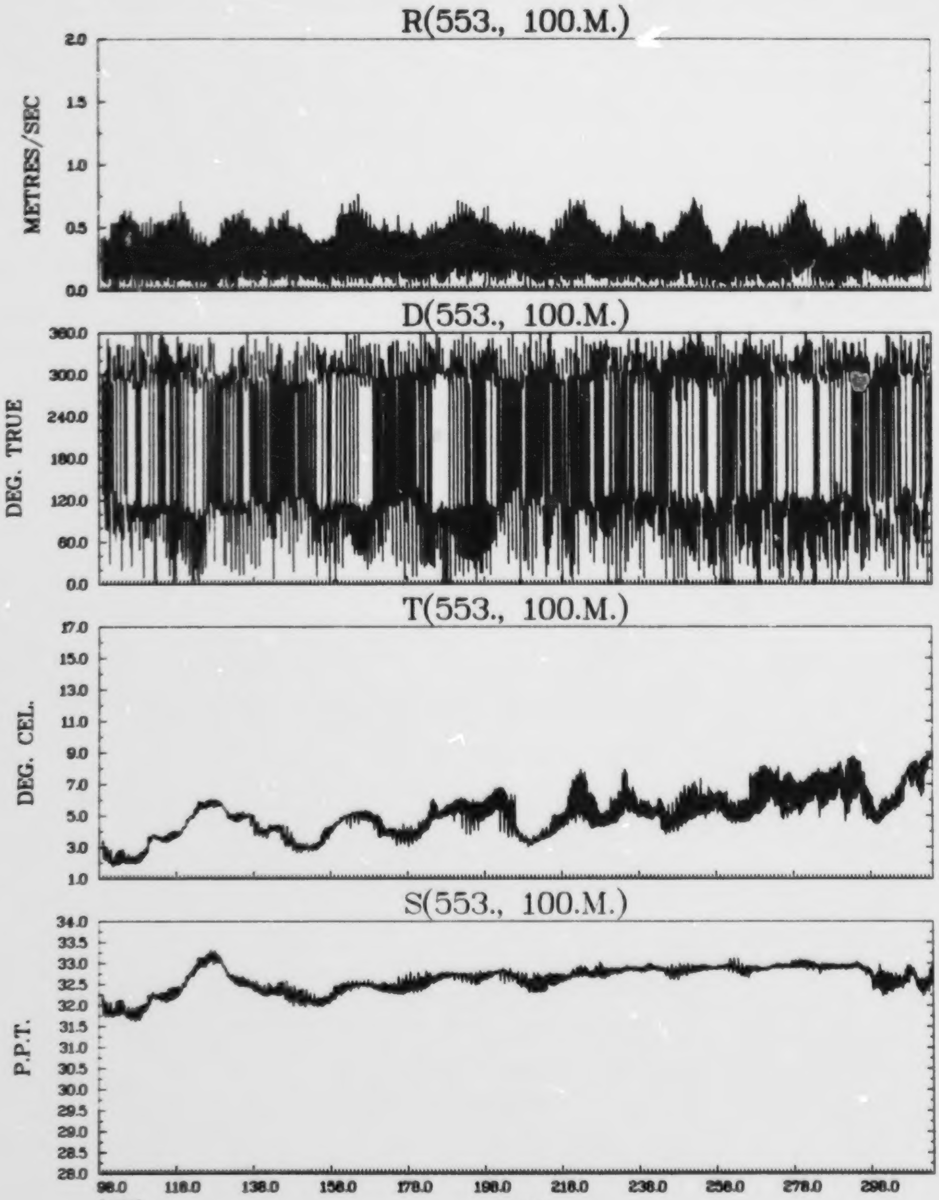

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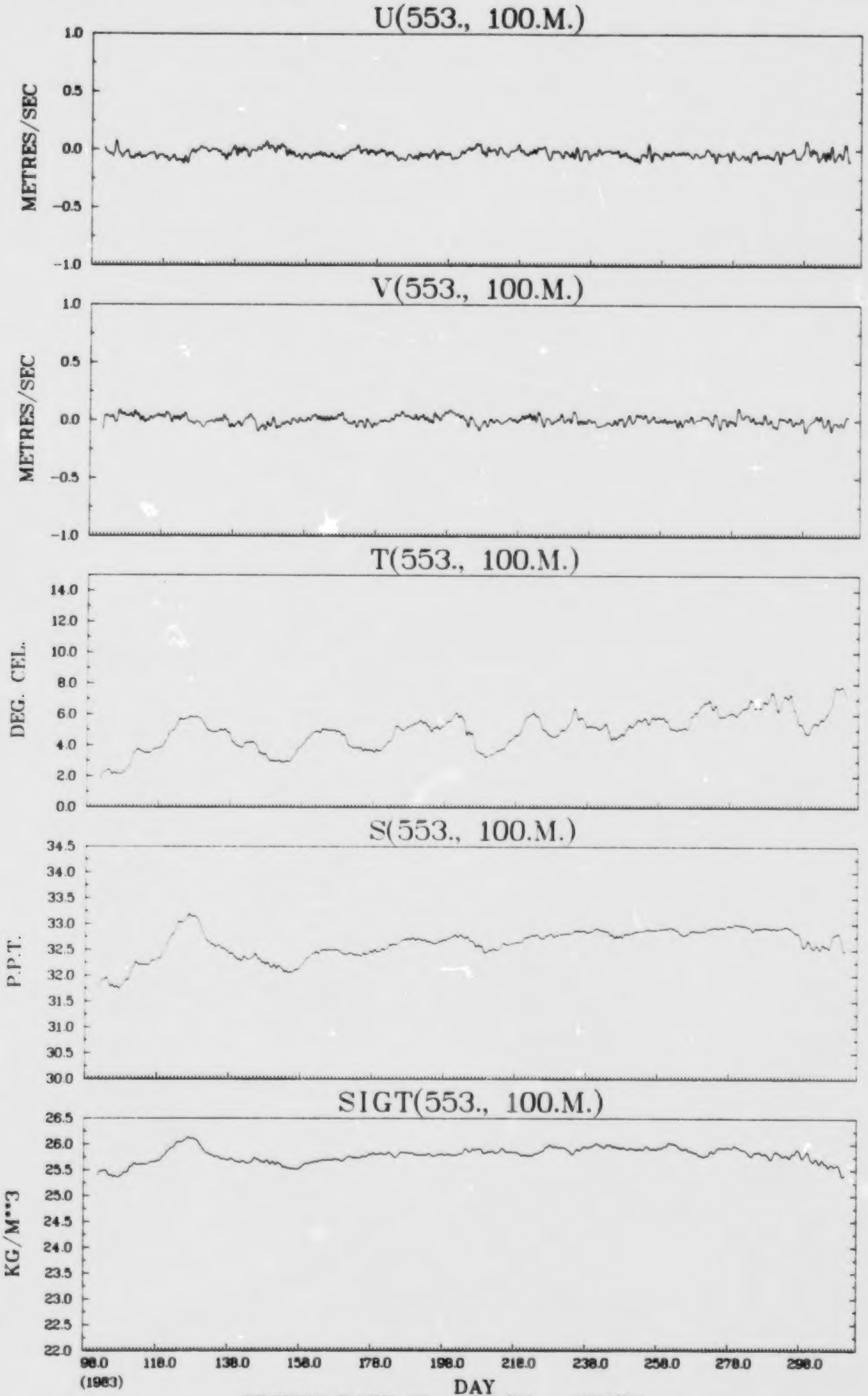

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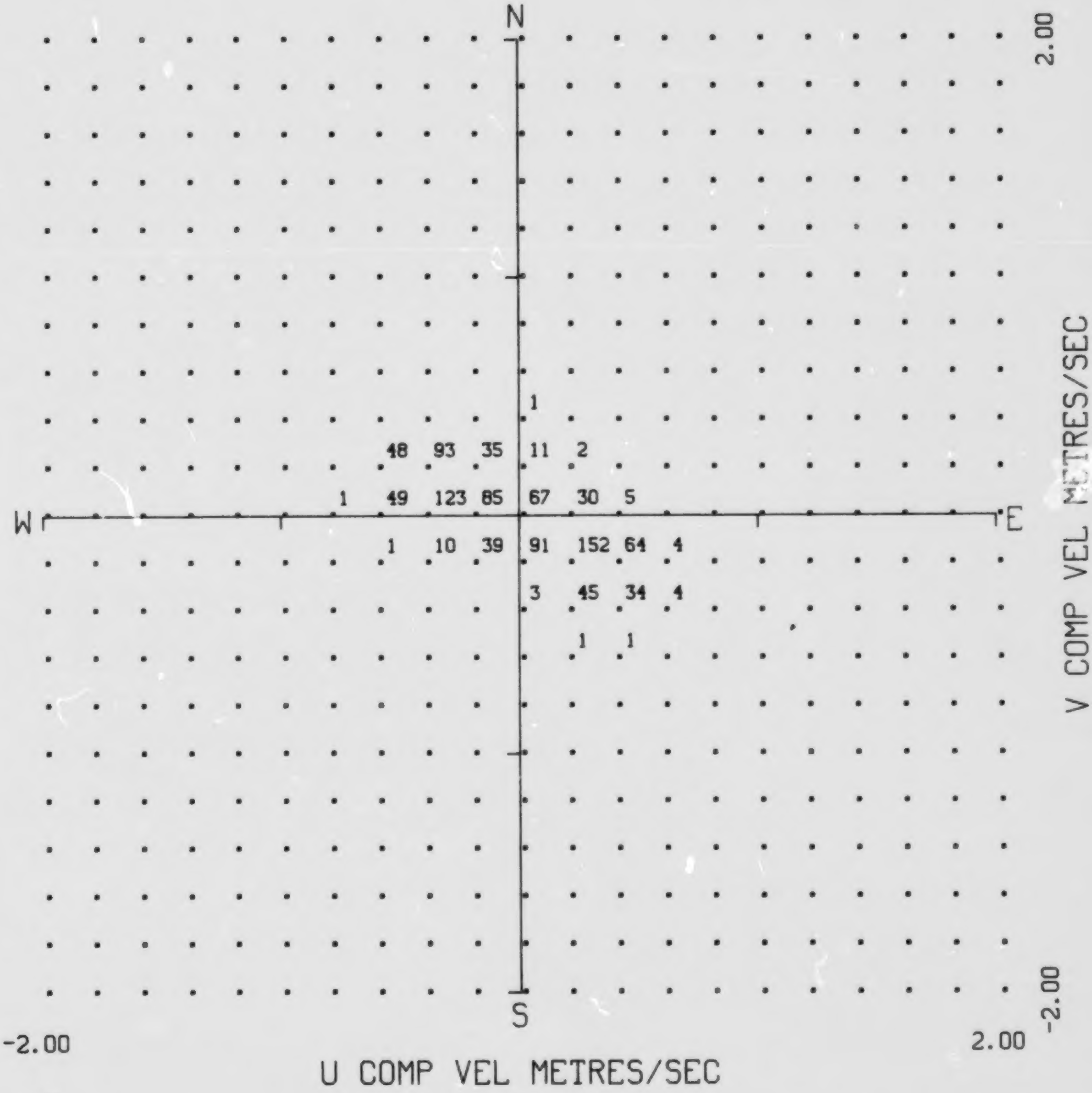

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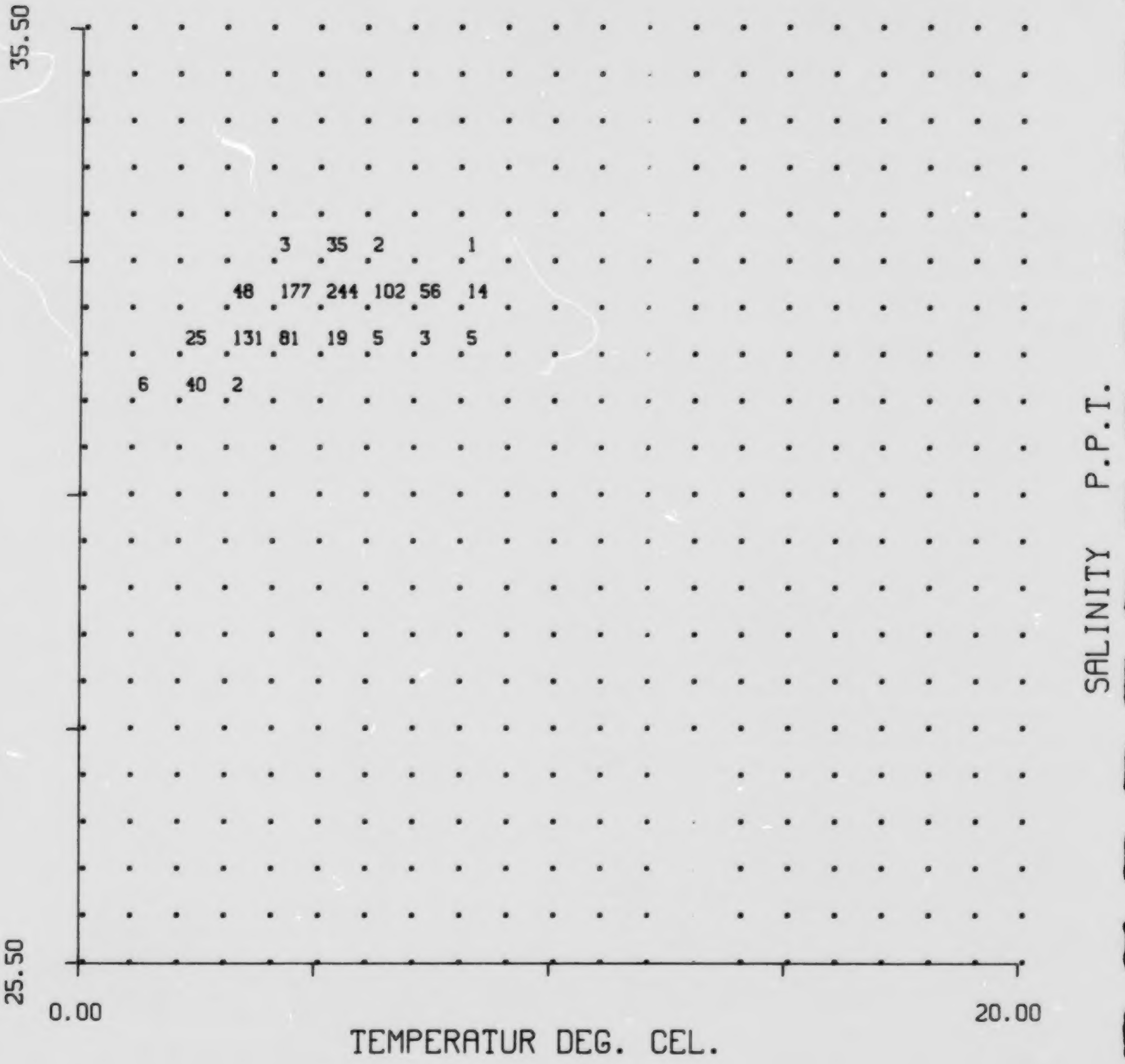

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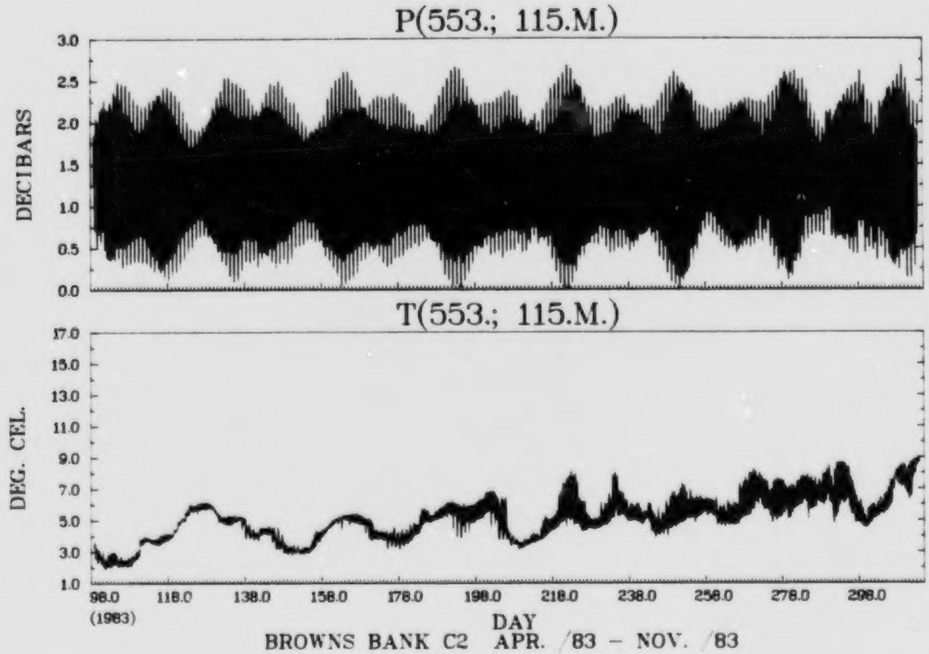
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T(553.; 115.M.)

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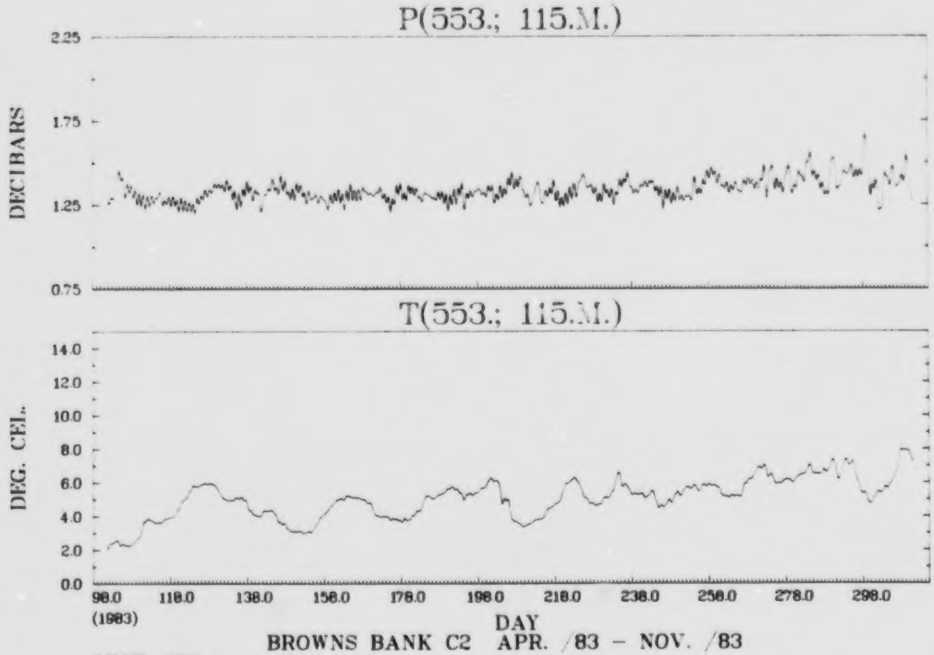
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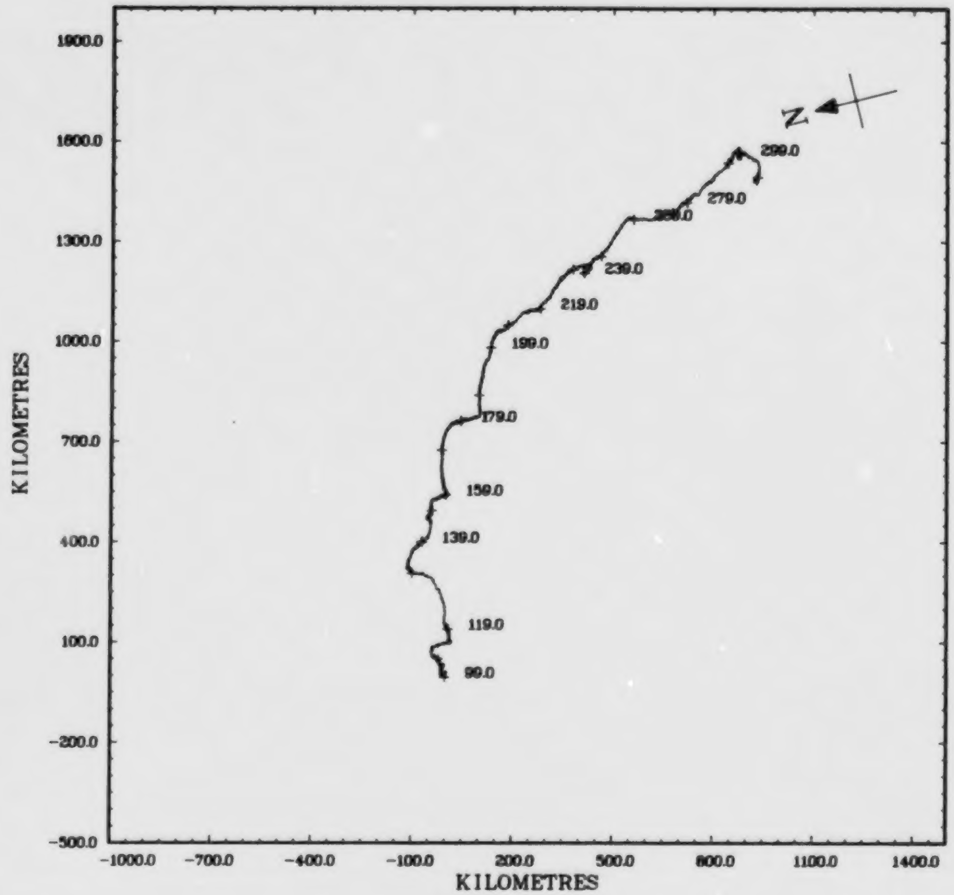
BROWNS BANK C2 APR. /83 - NOV. /83

INST. 336

STN. 554, 15 M.



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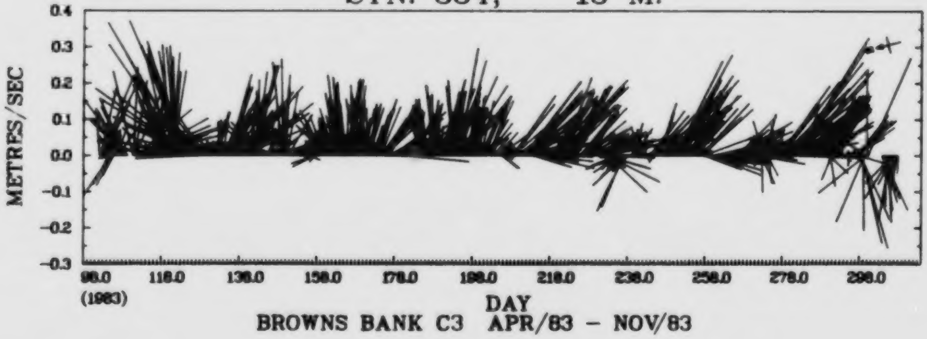

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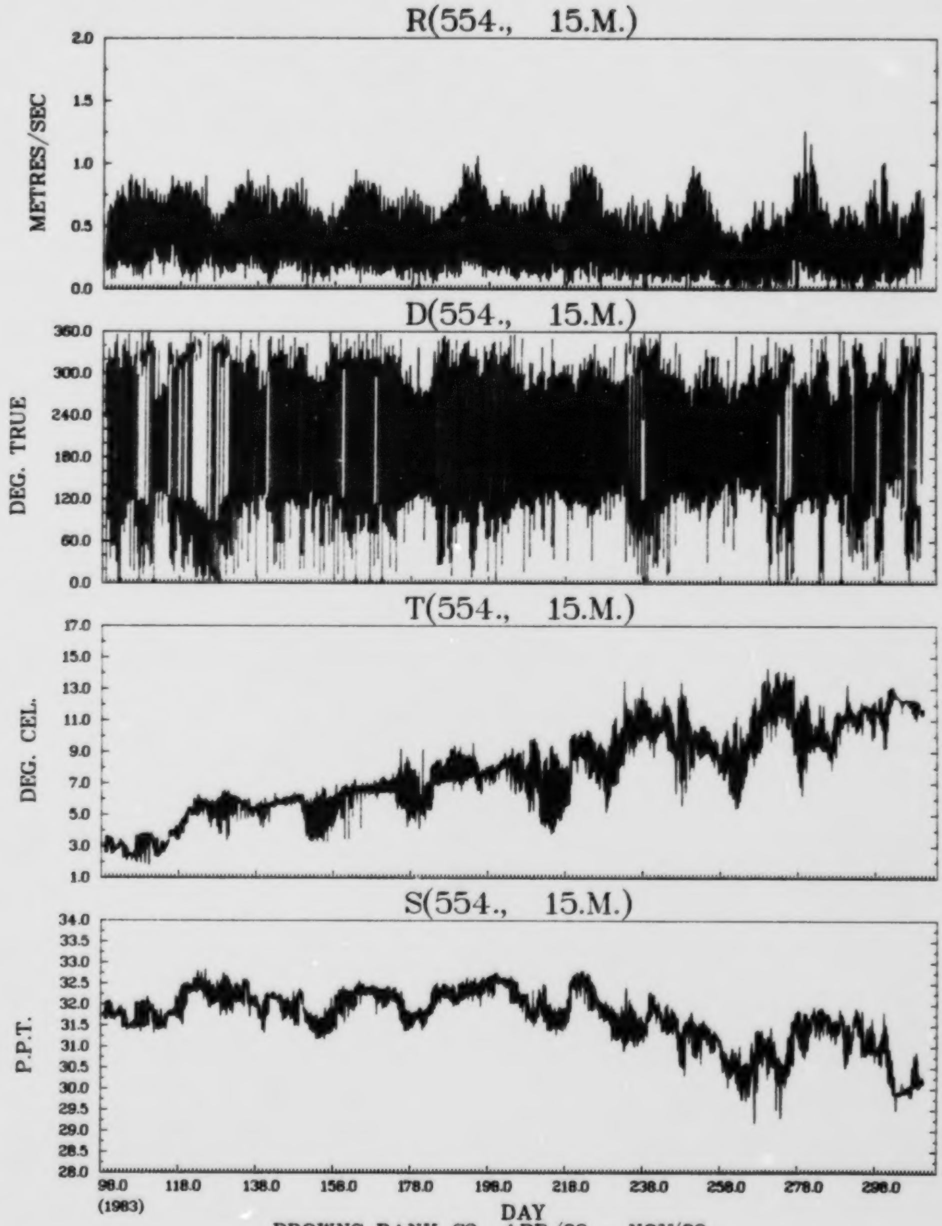

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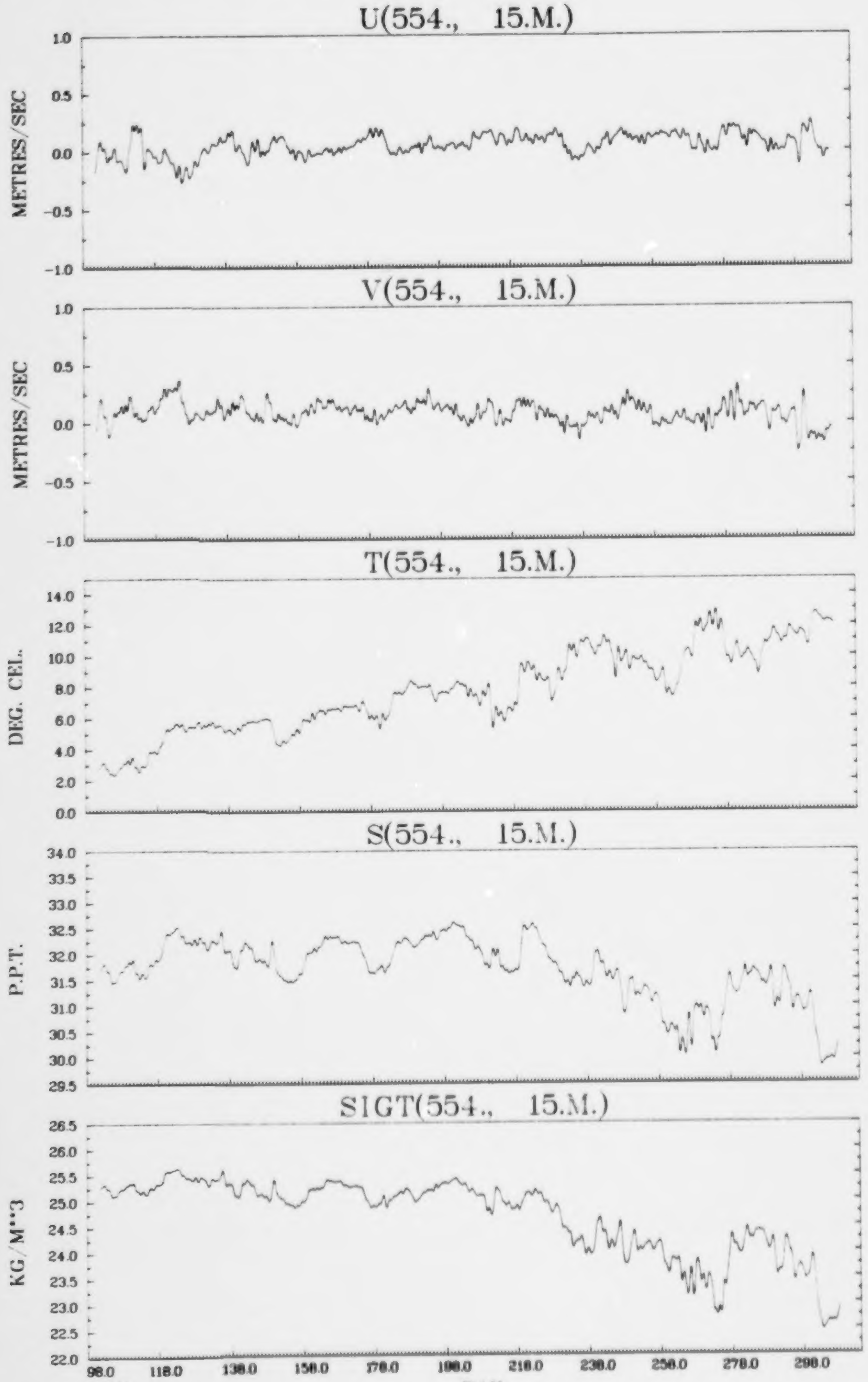

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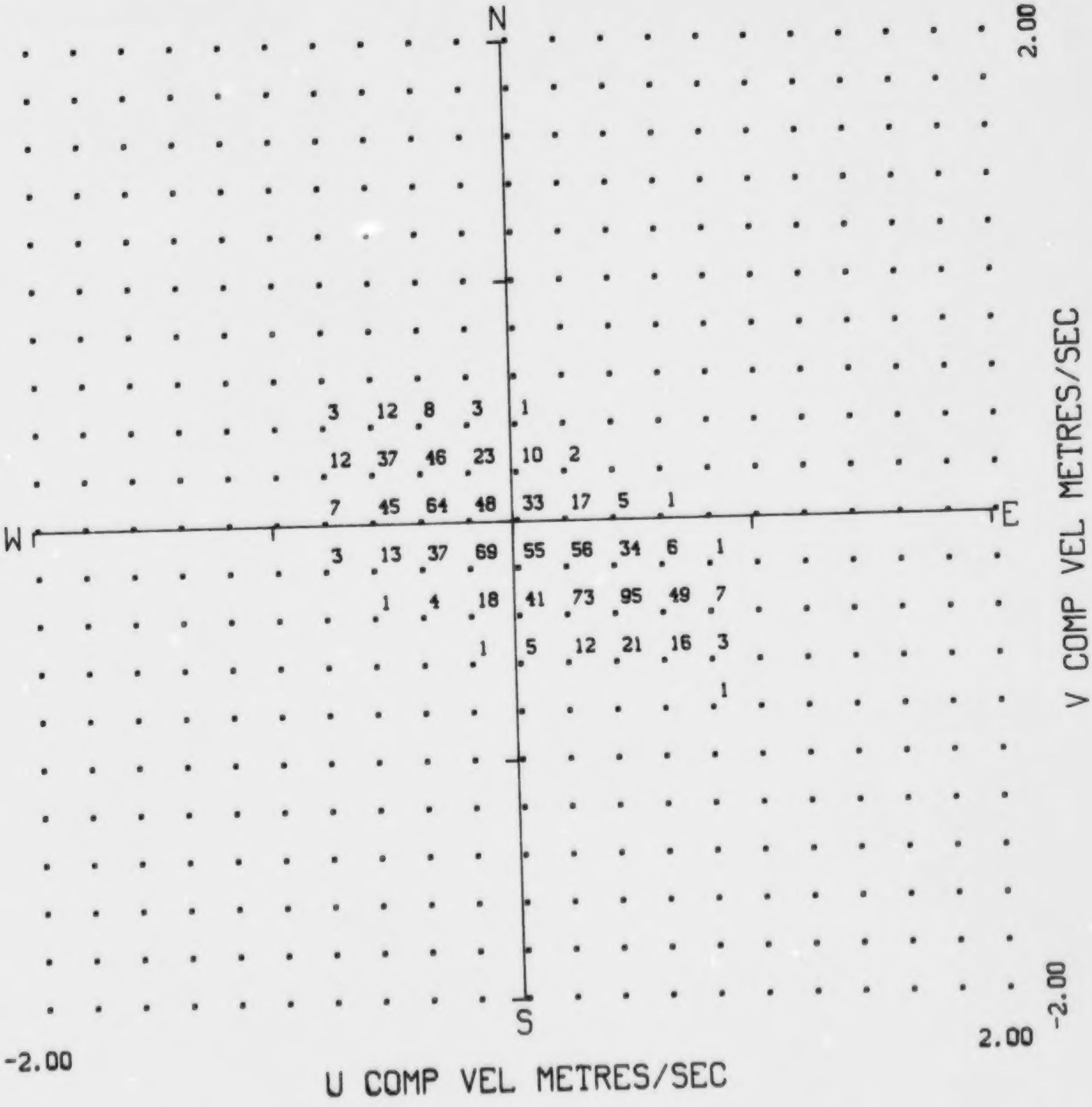

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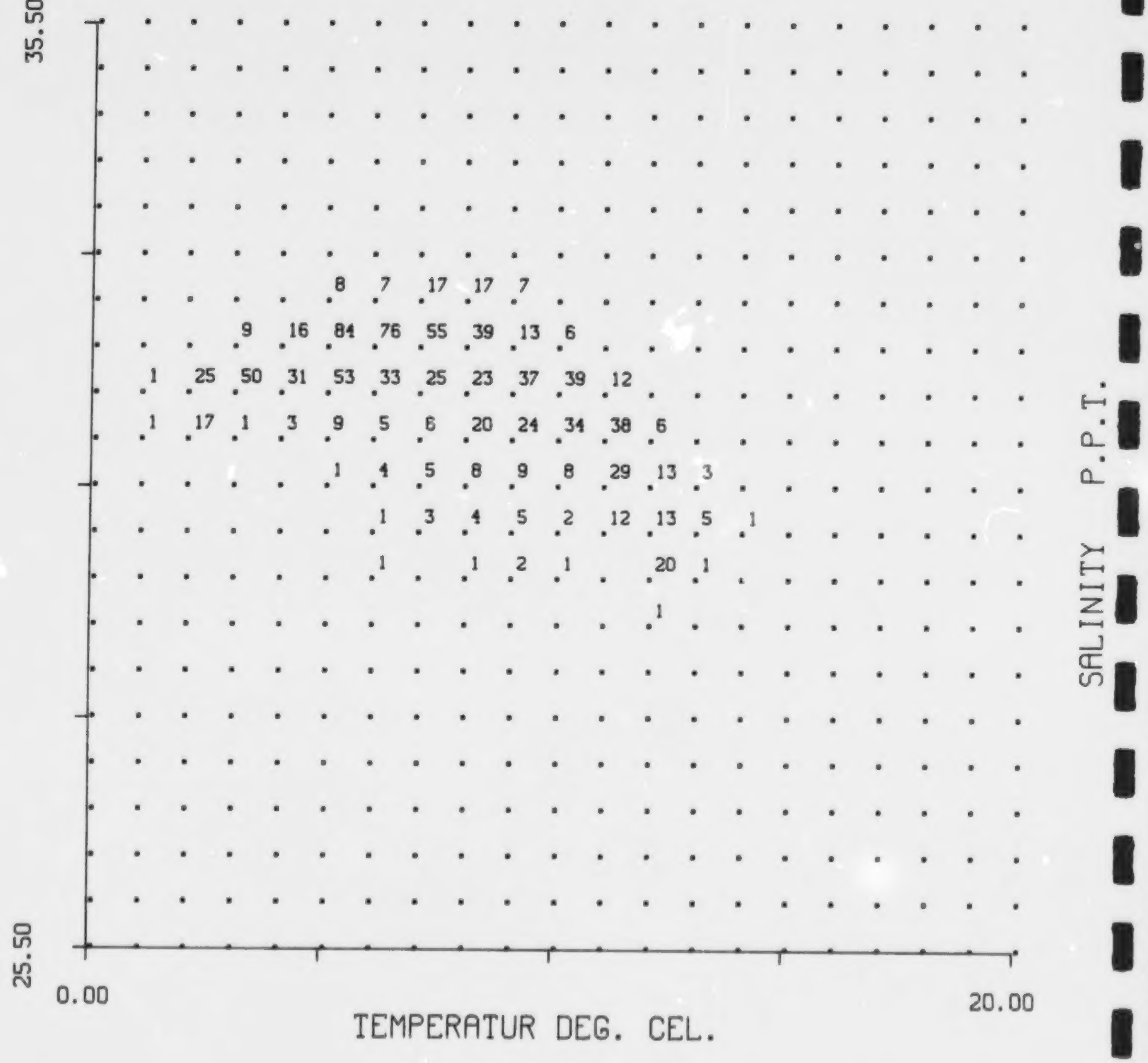

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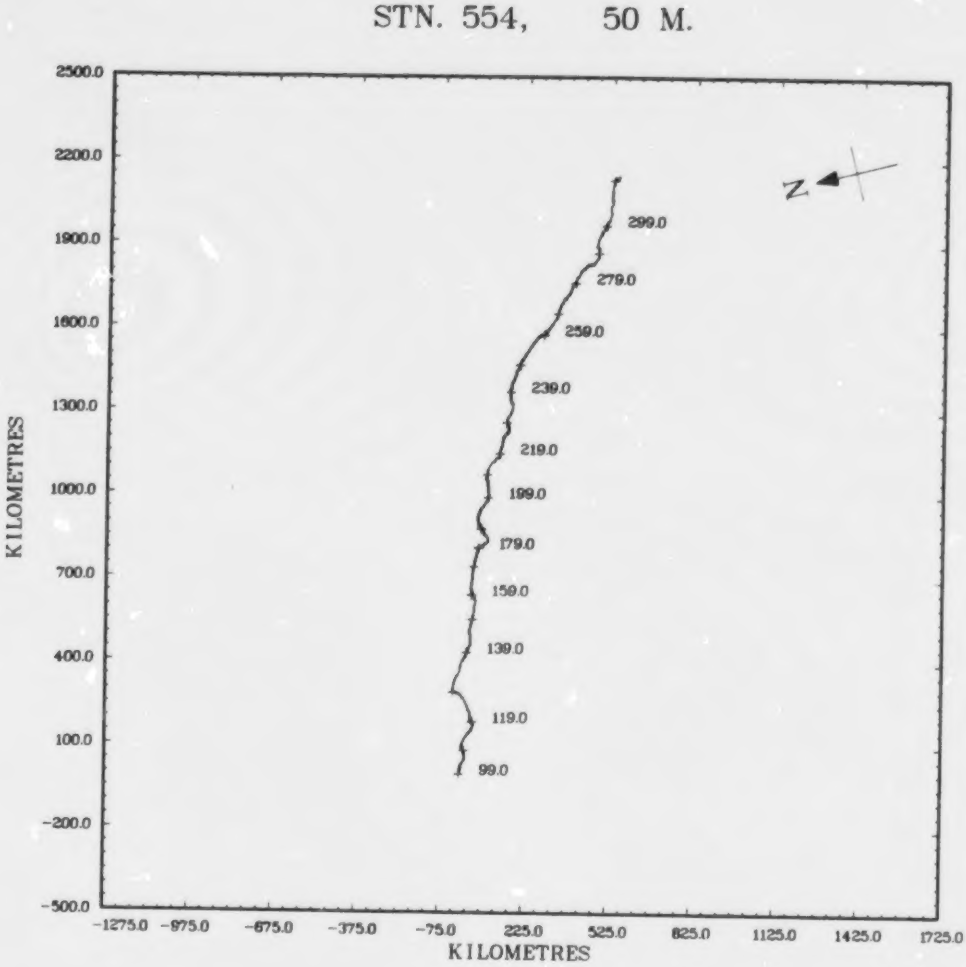

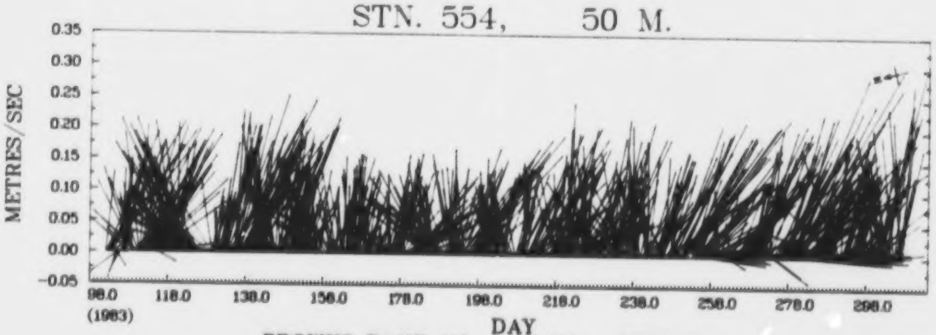

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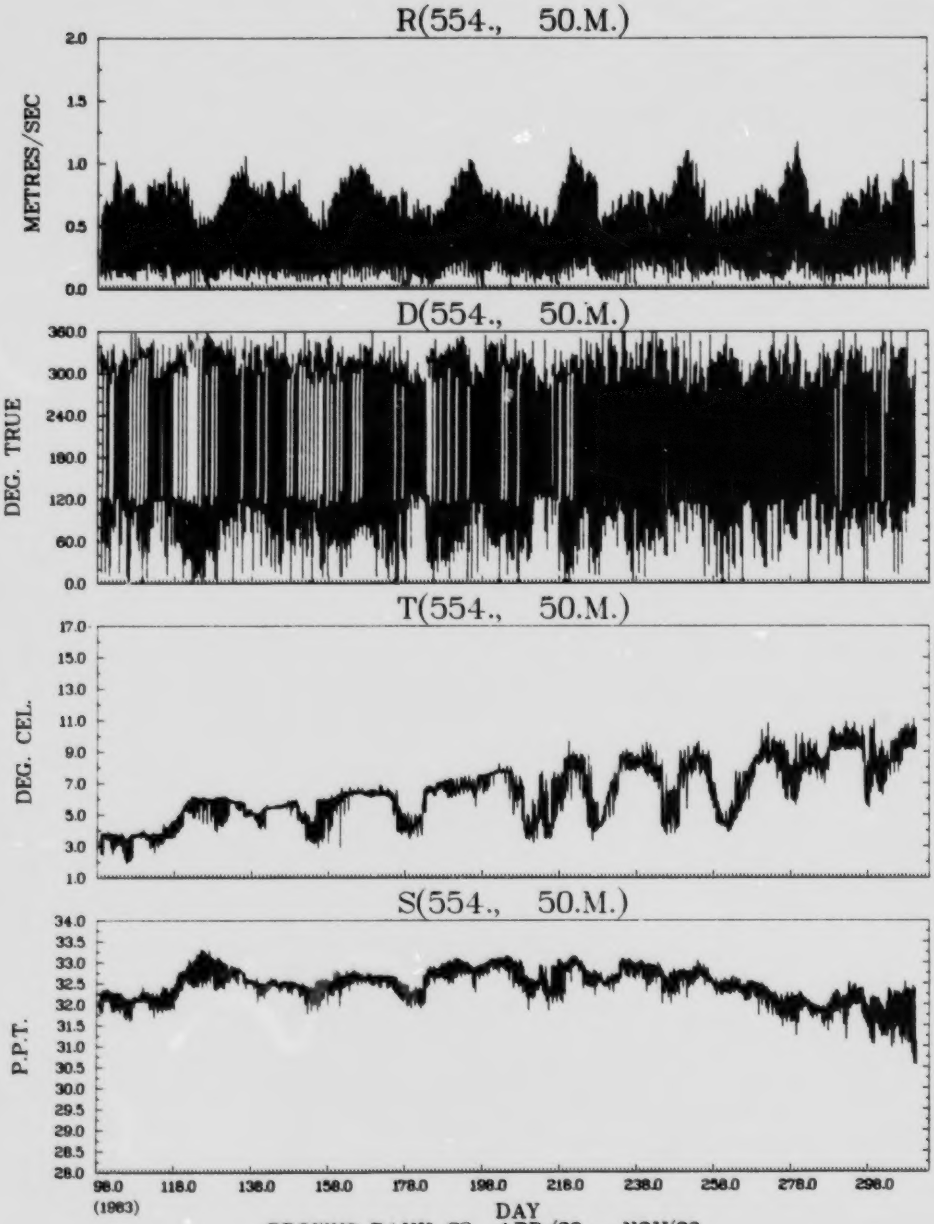

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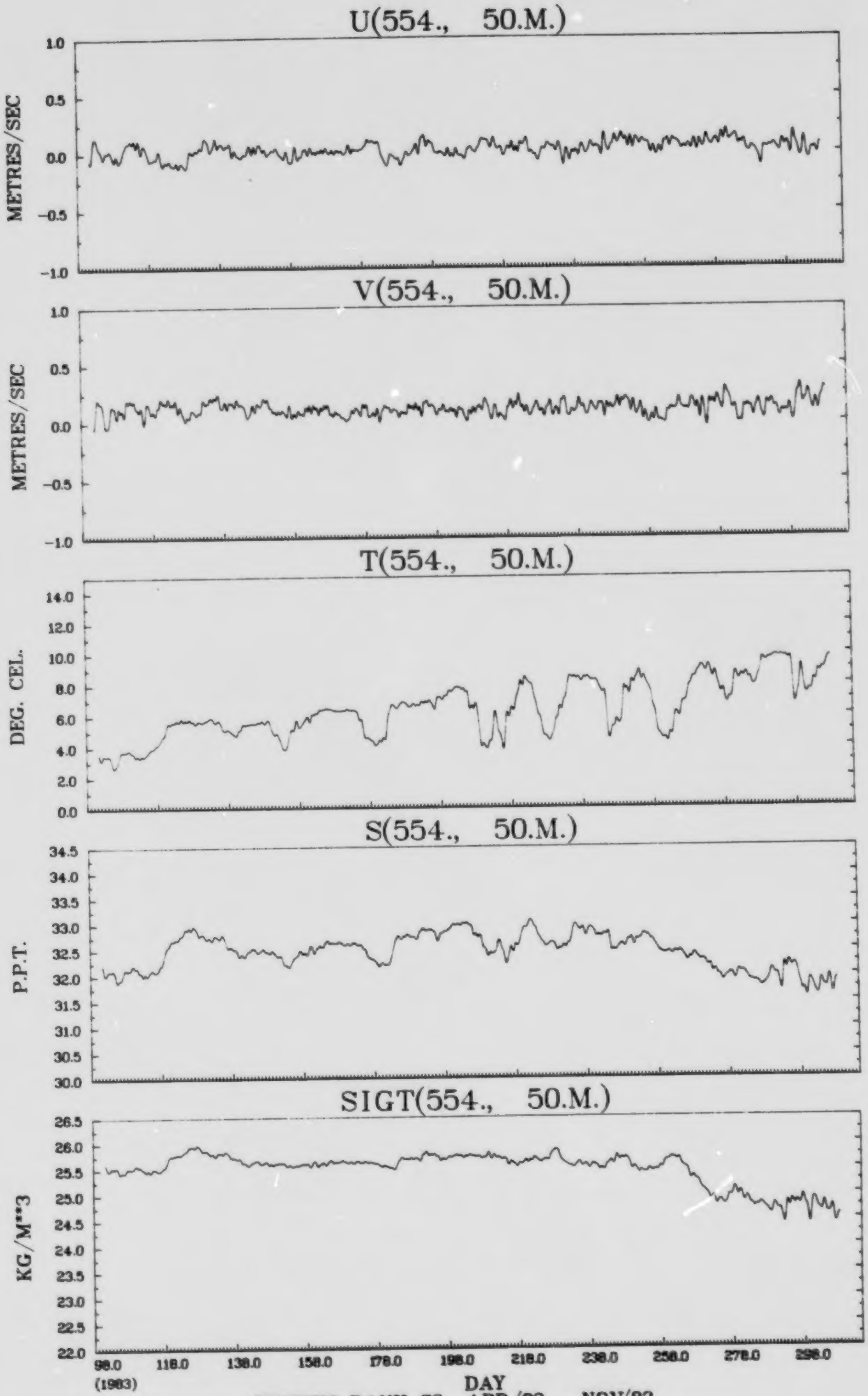

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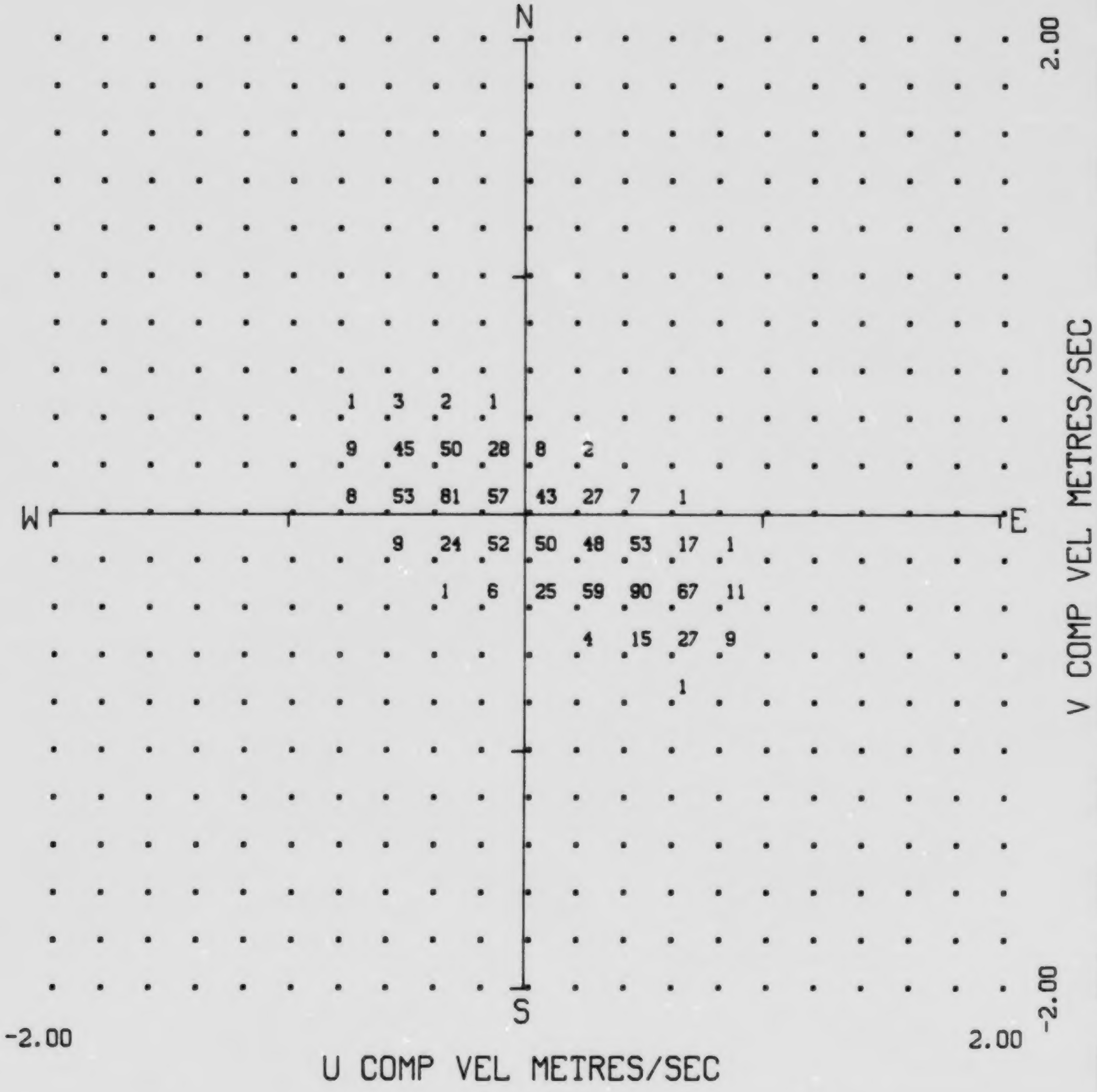

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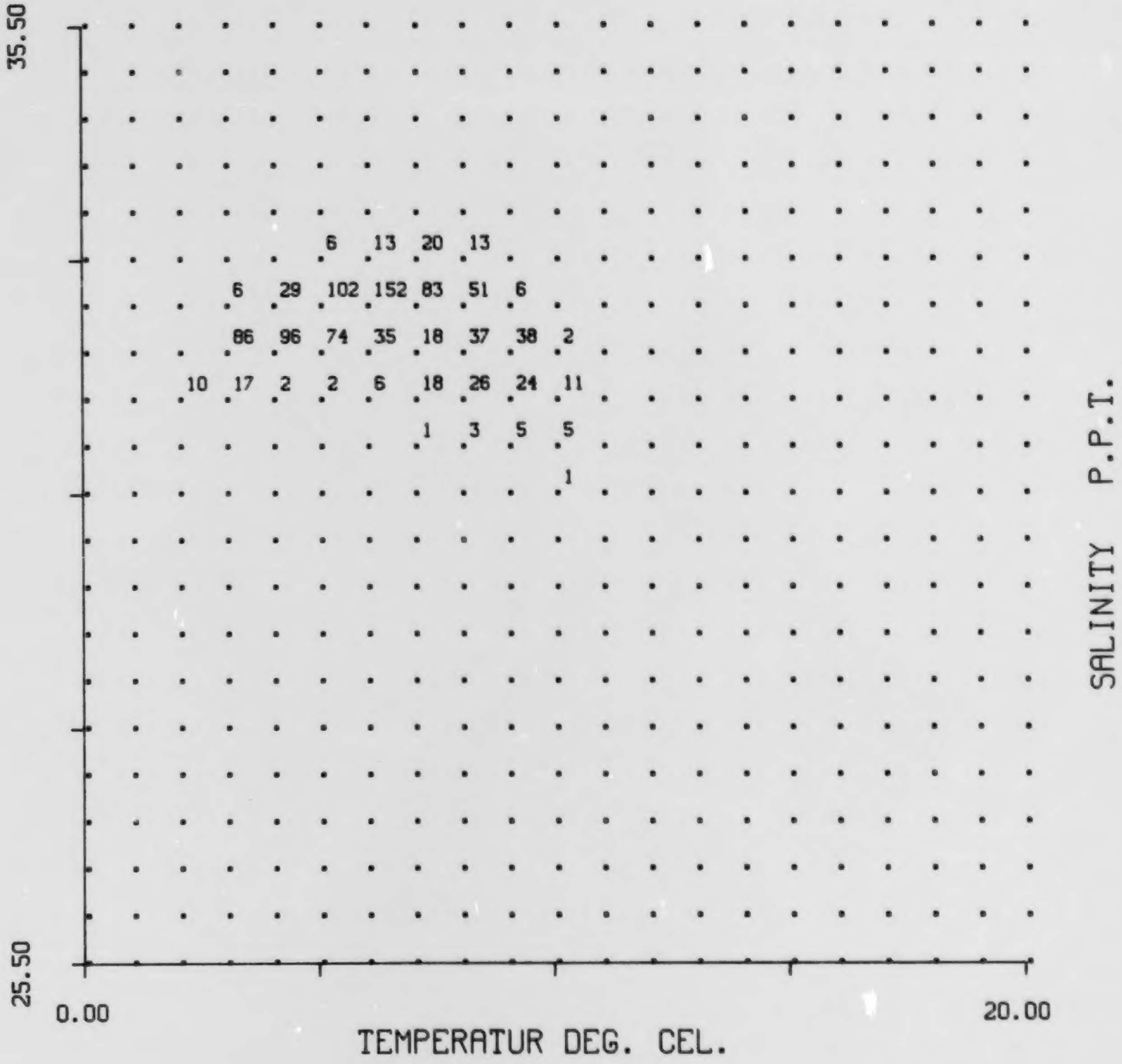

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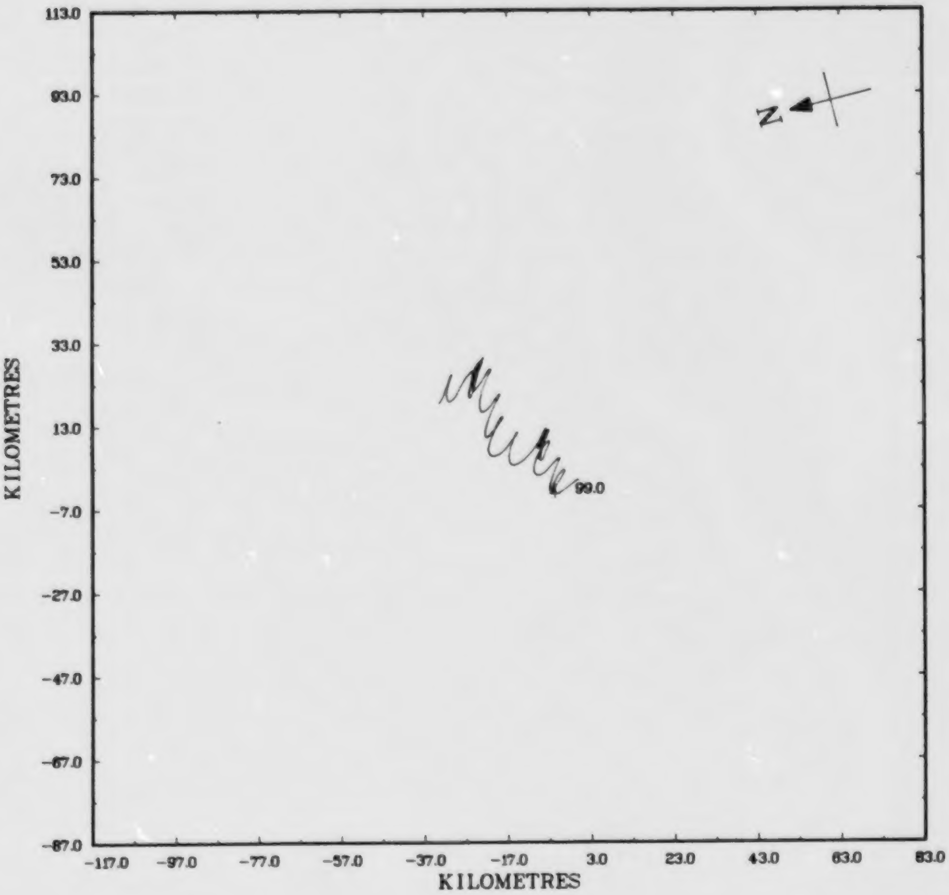
STN. 554, 100 M.



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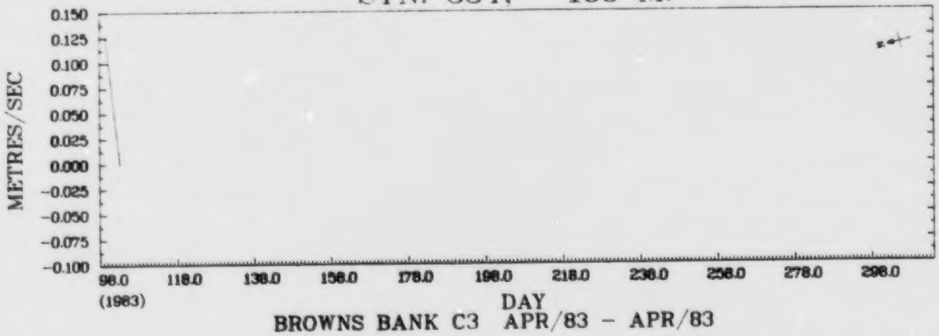

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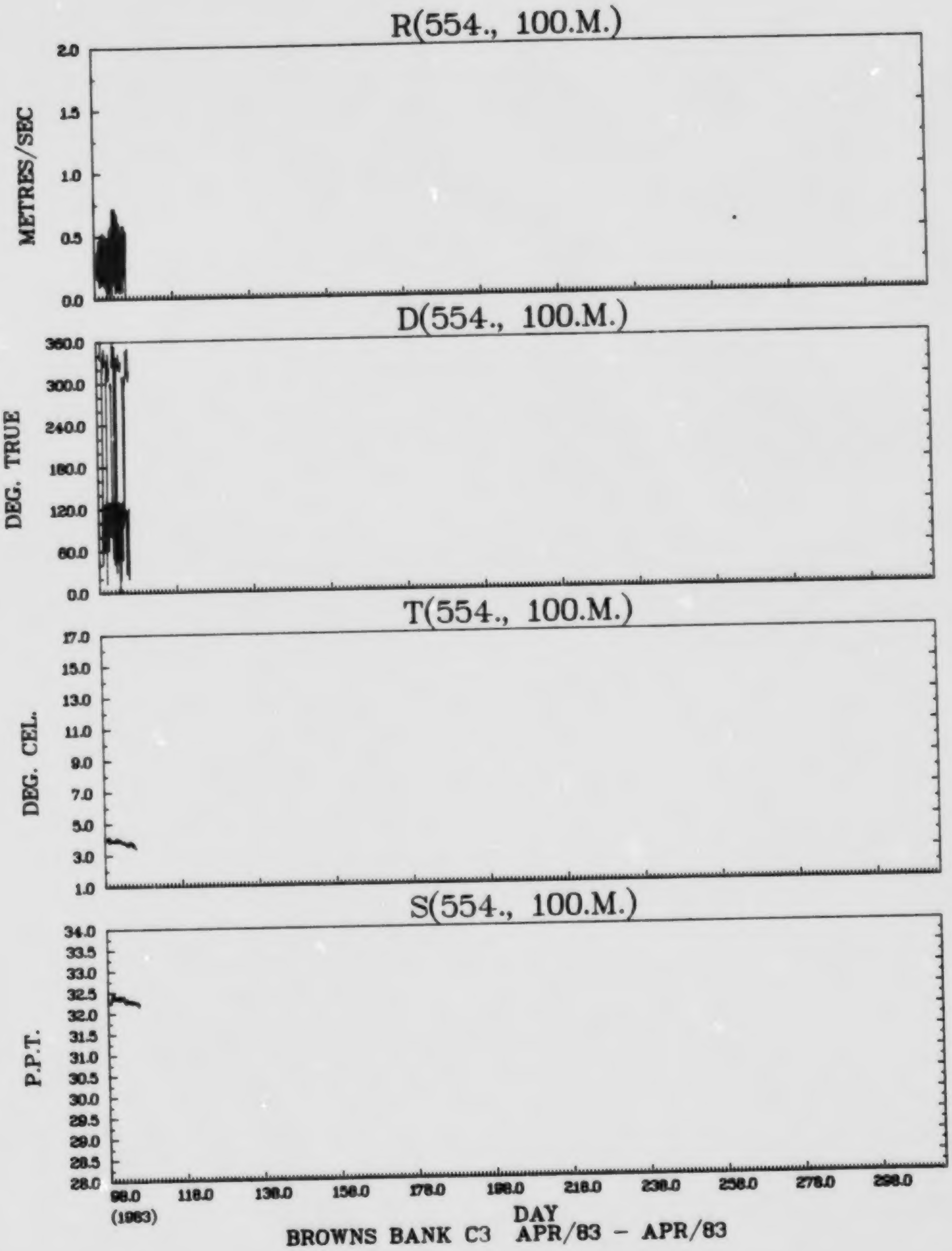

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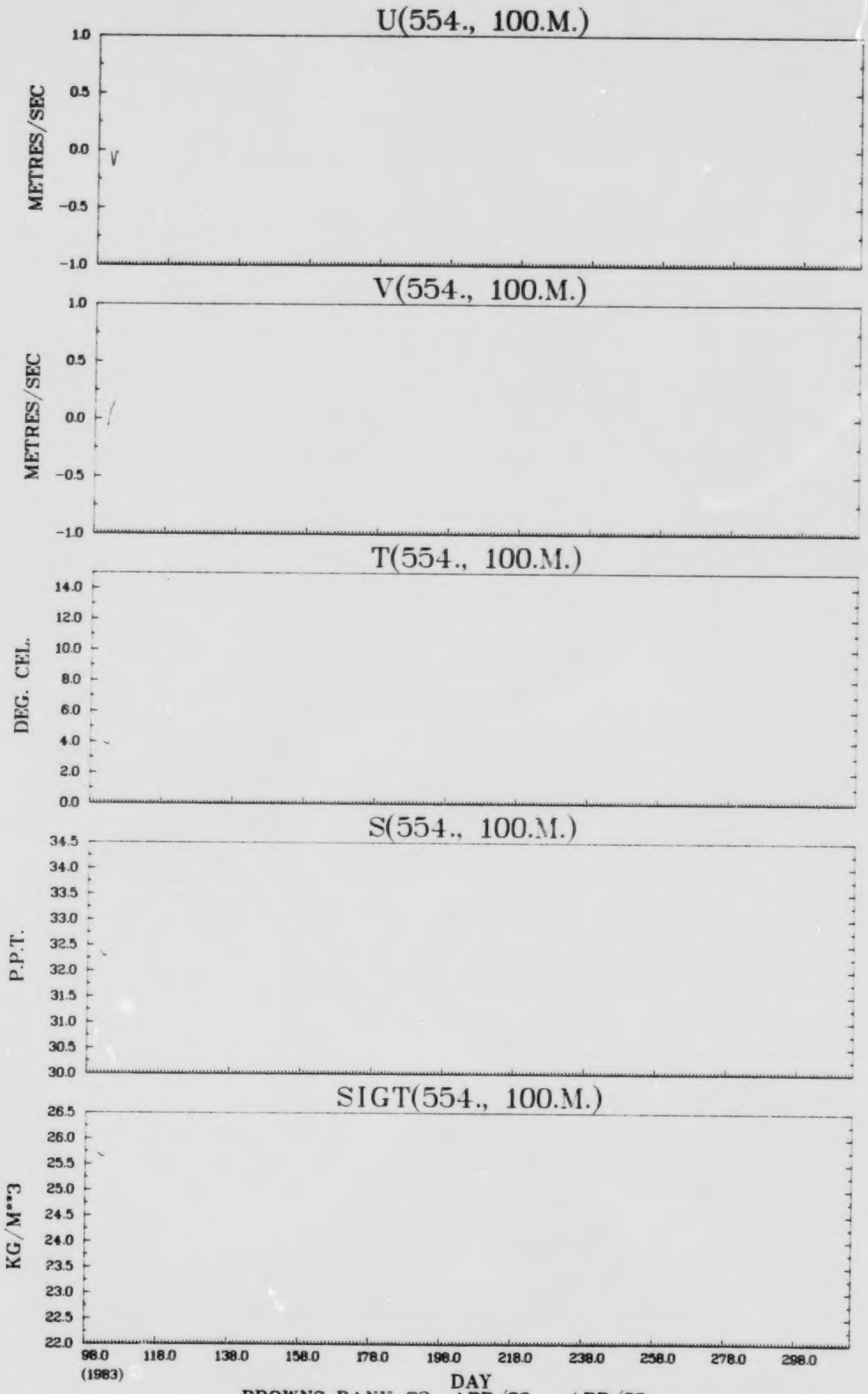
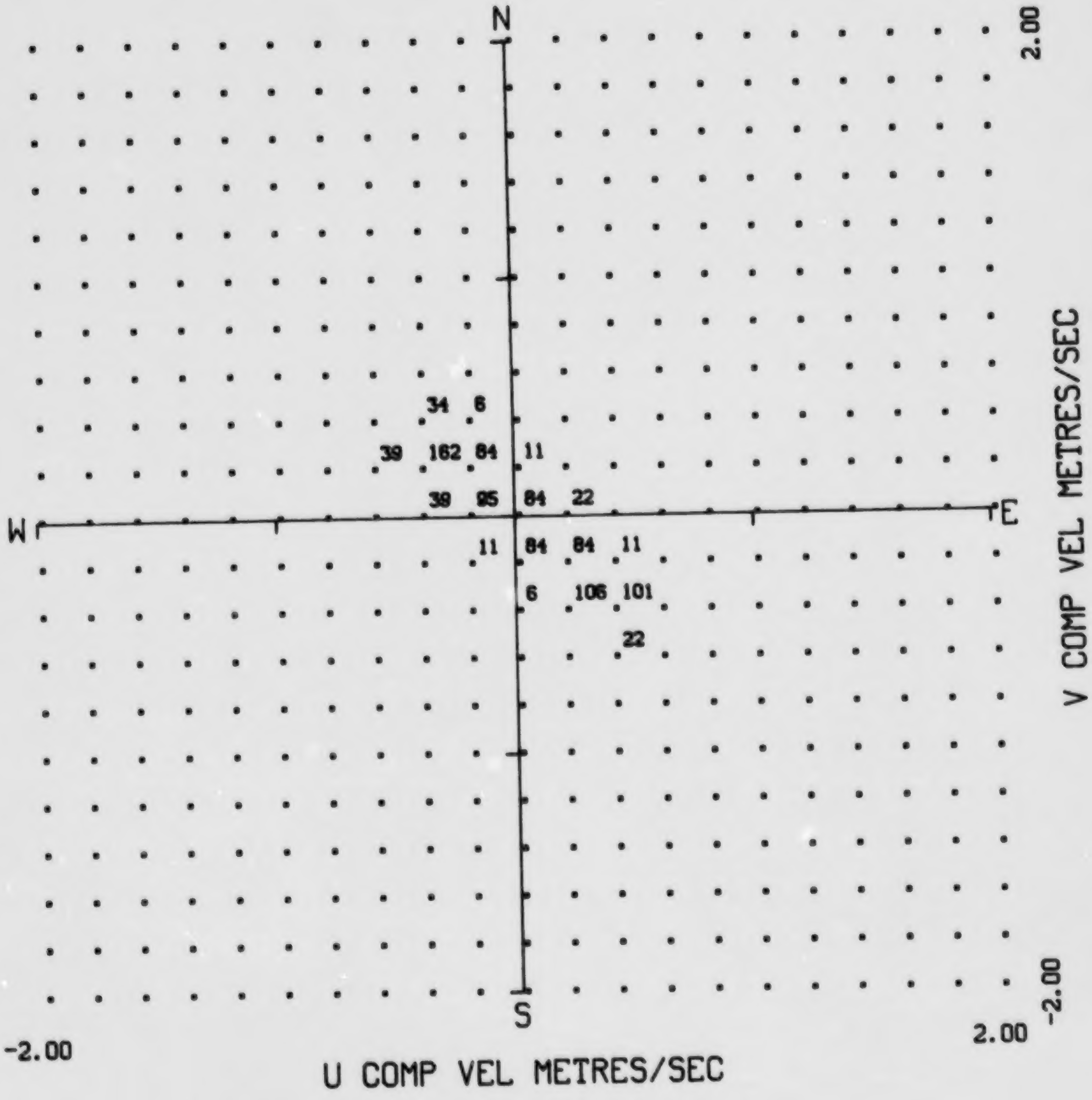


BROWNS BANK C3 APR/83 - APR/83



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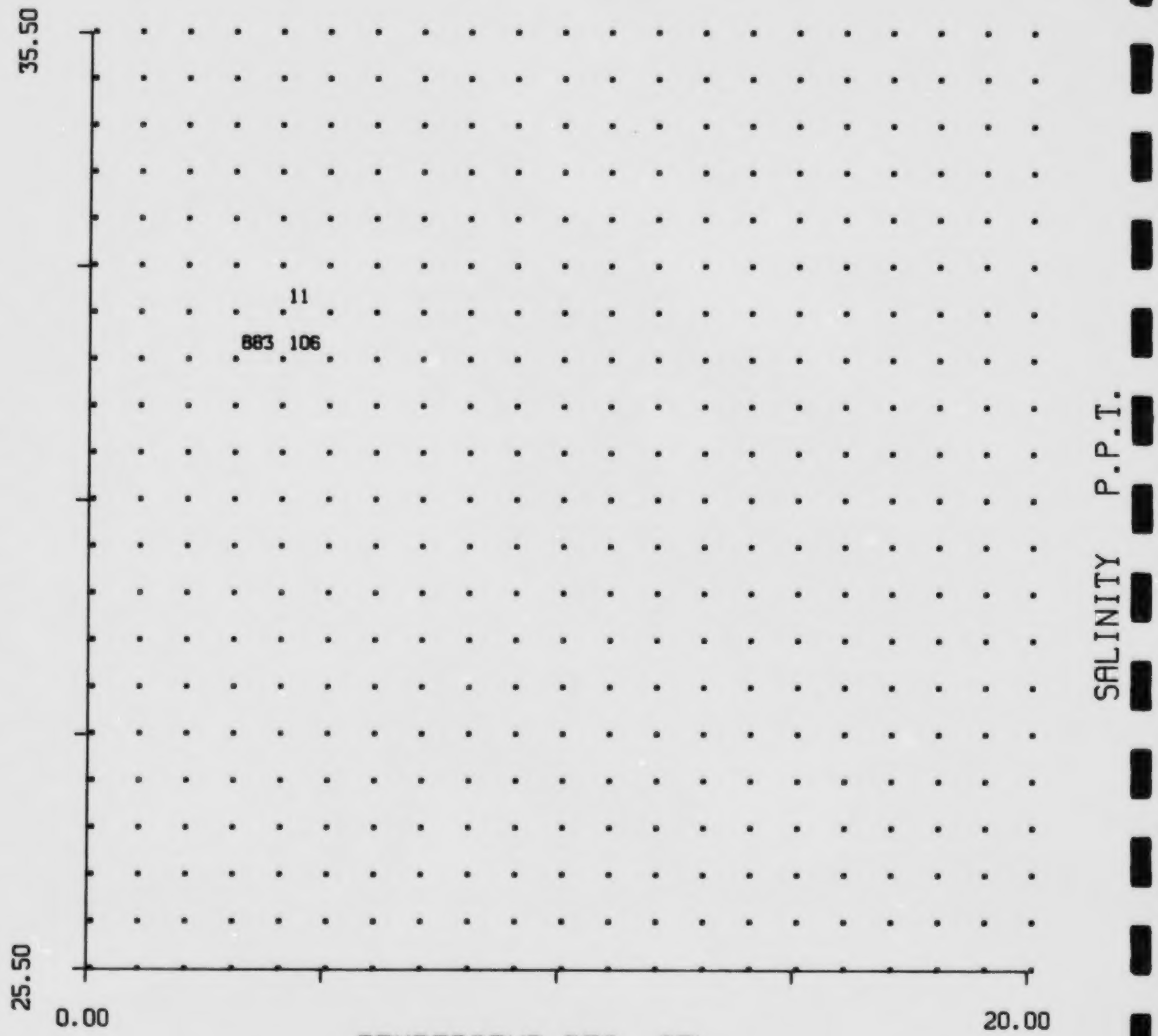

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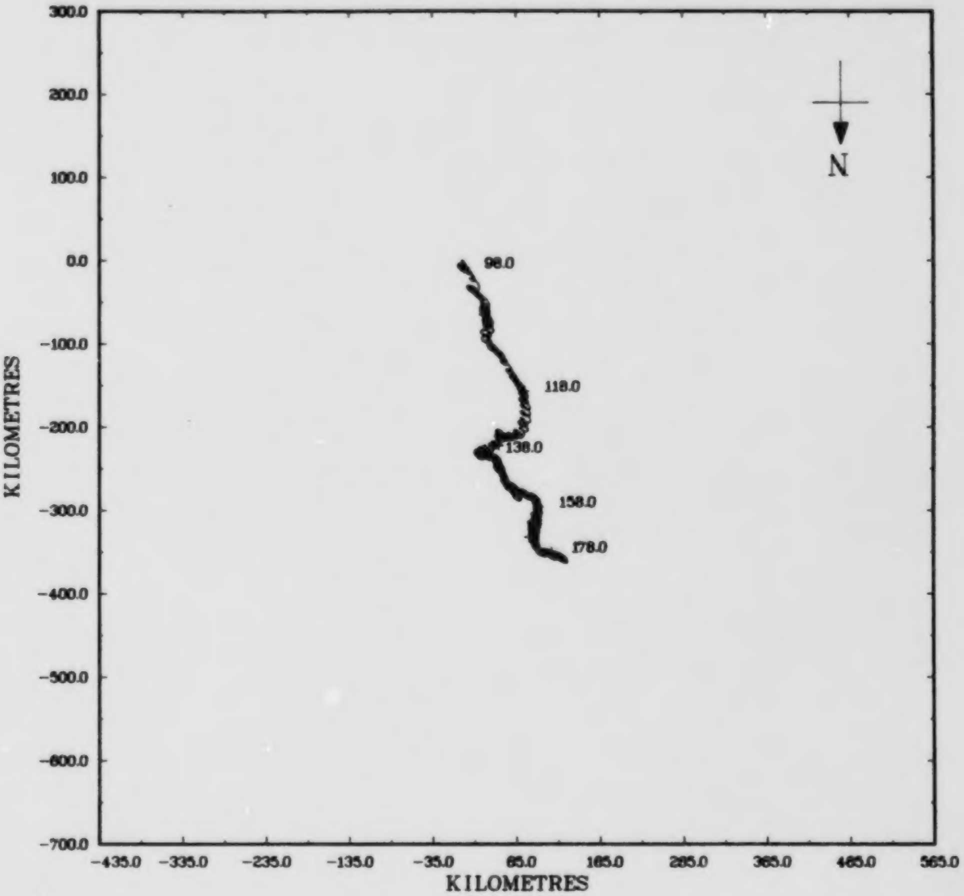

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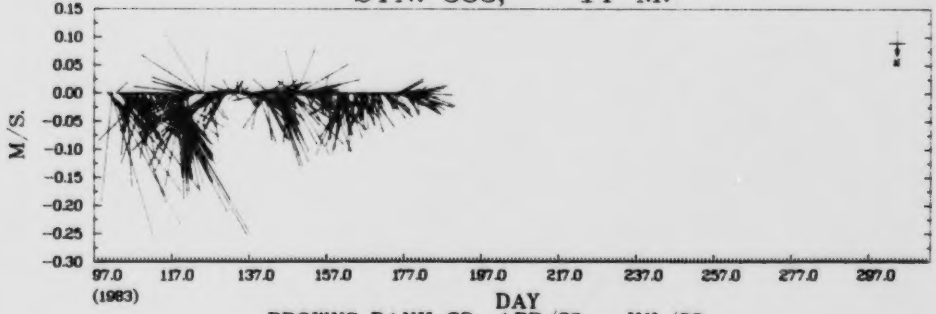

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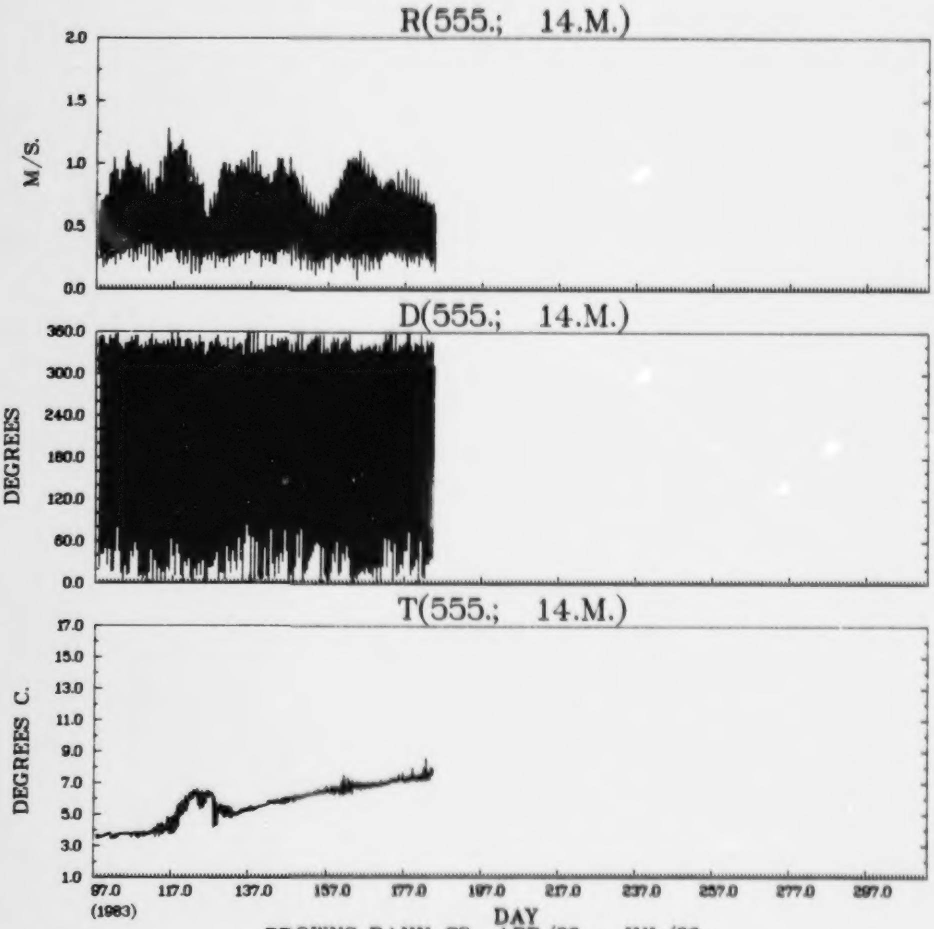

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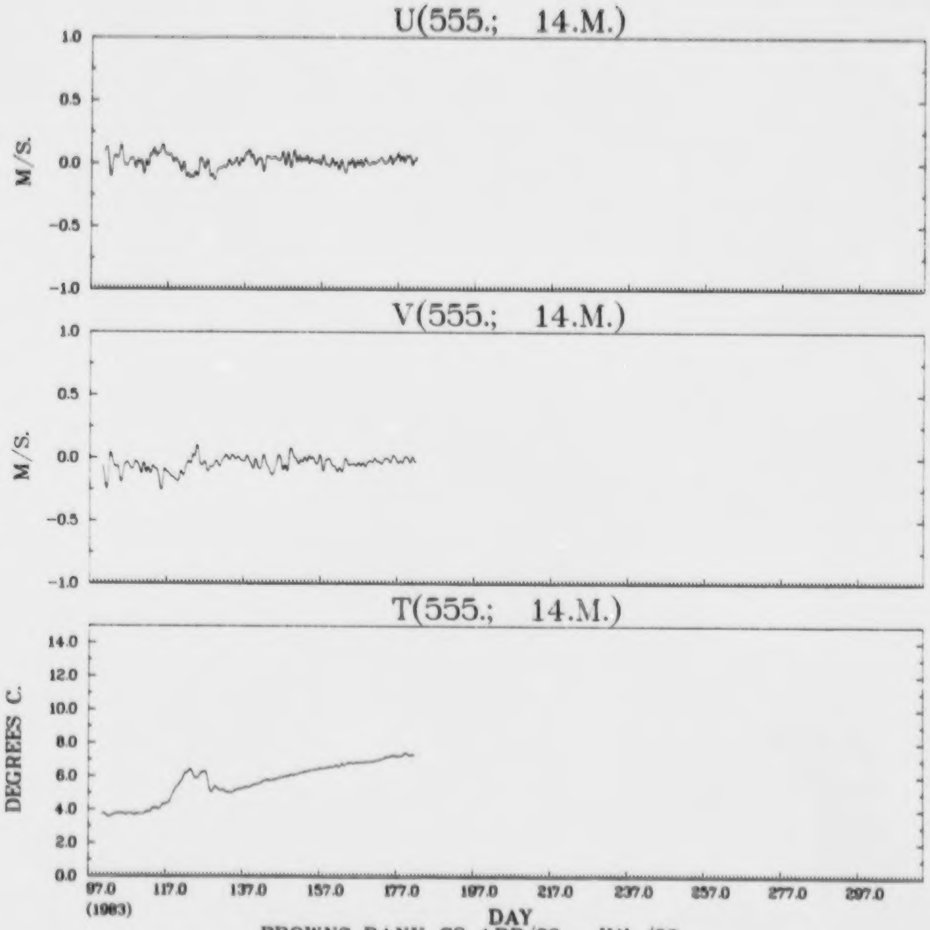

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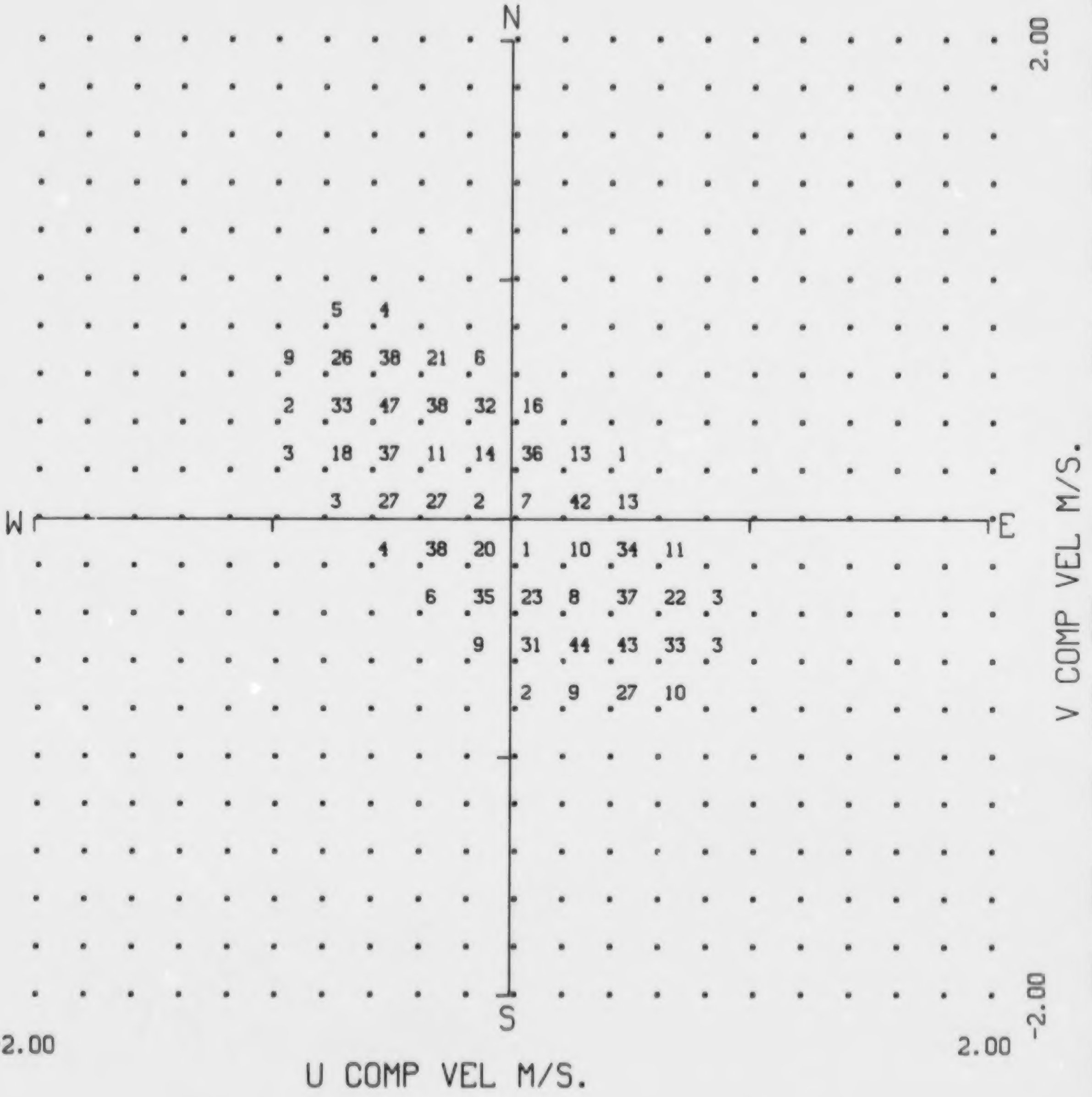

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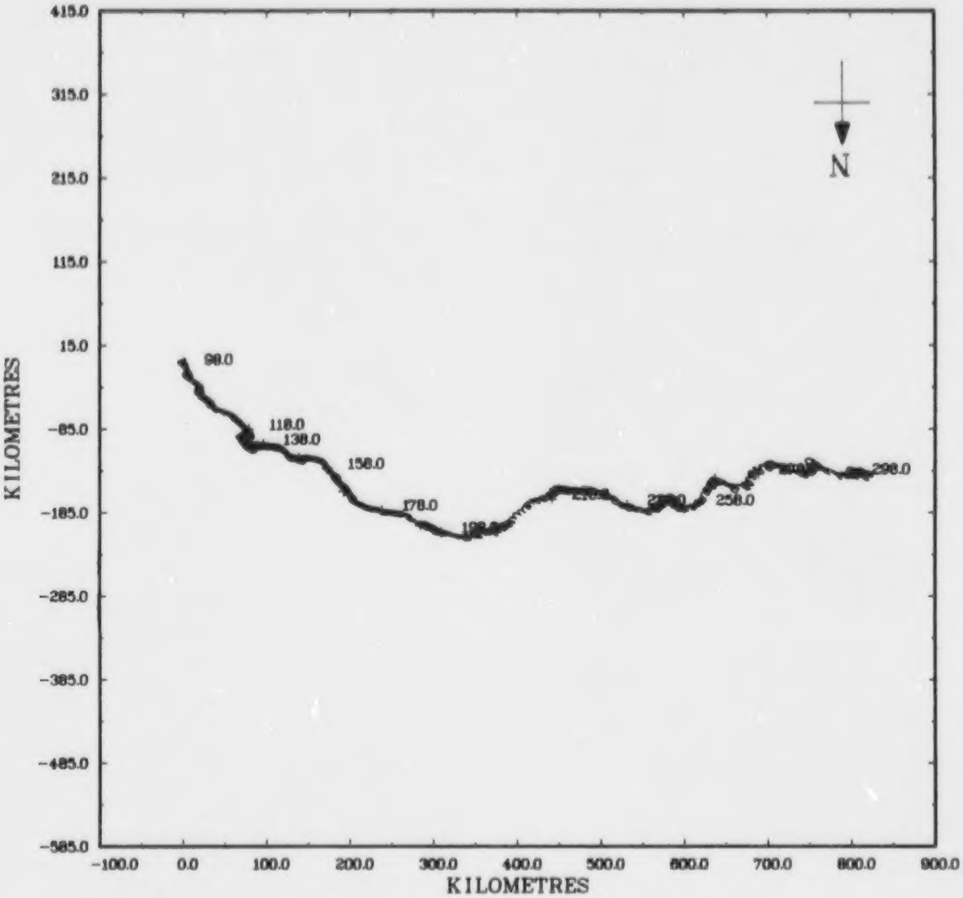

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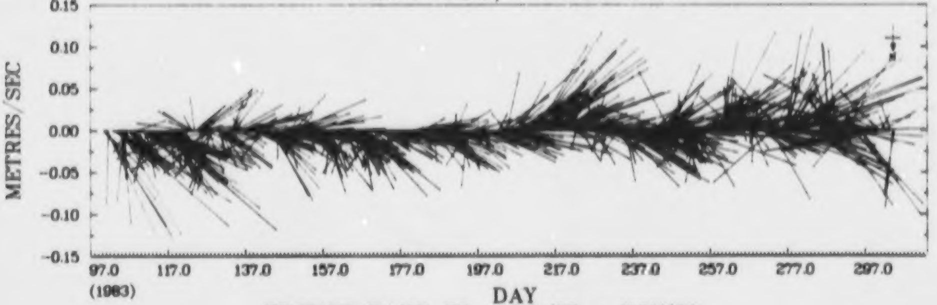

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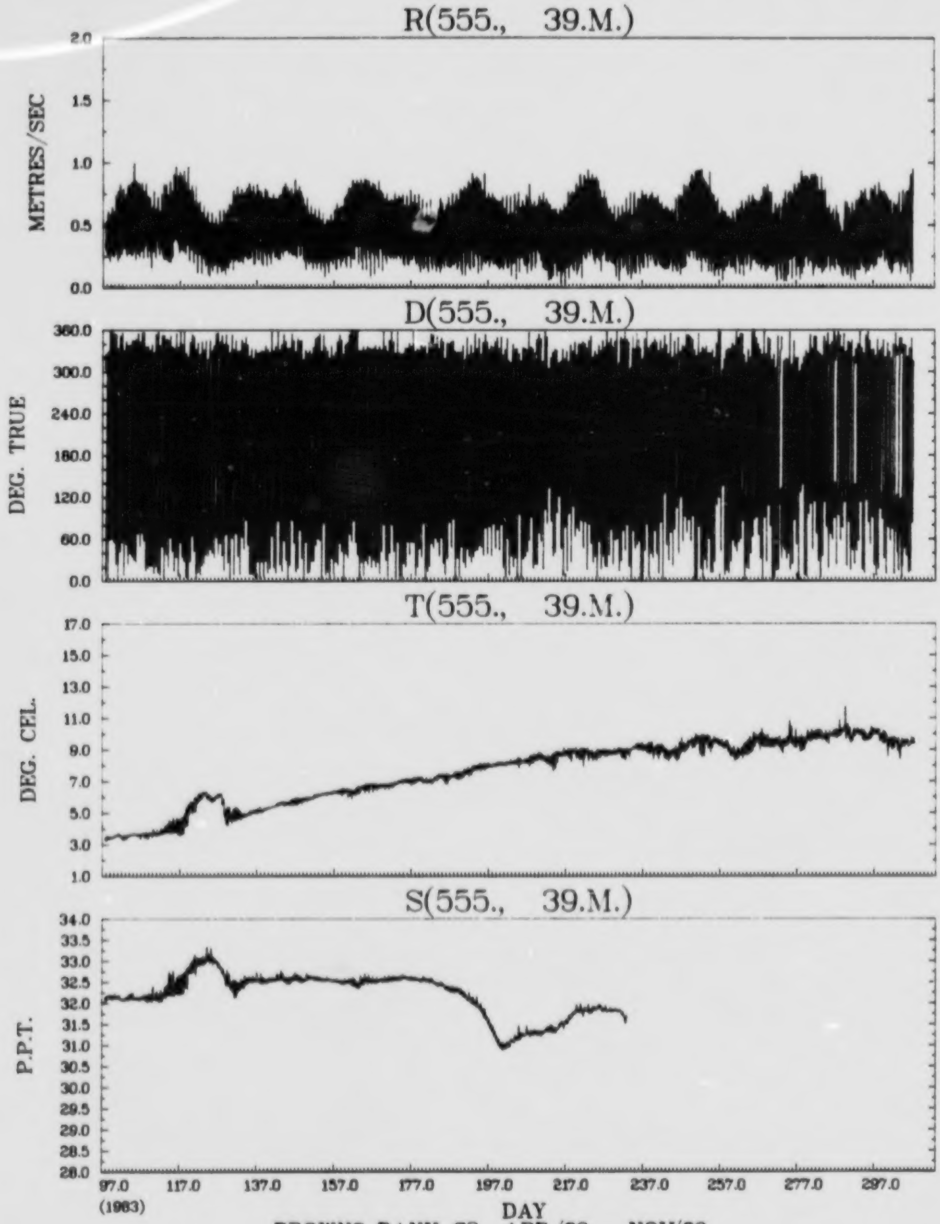

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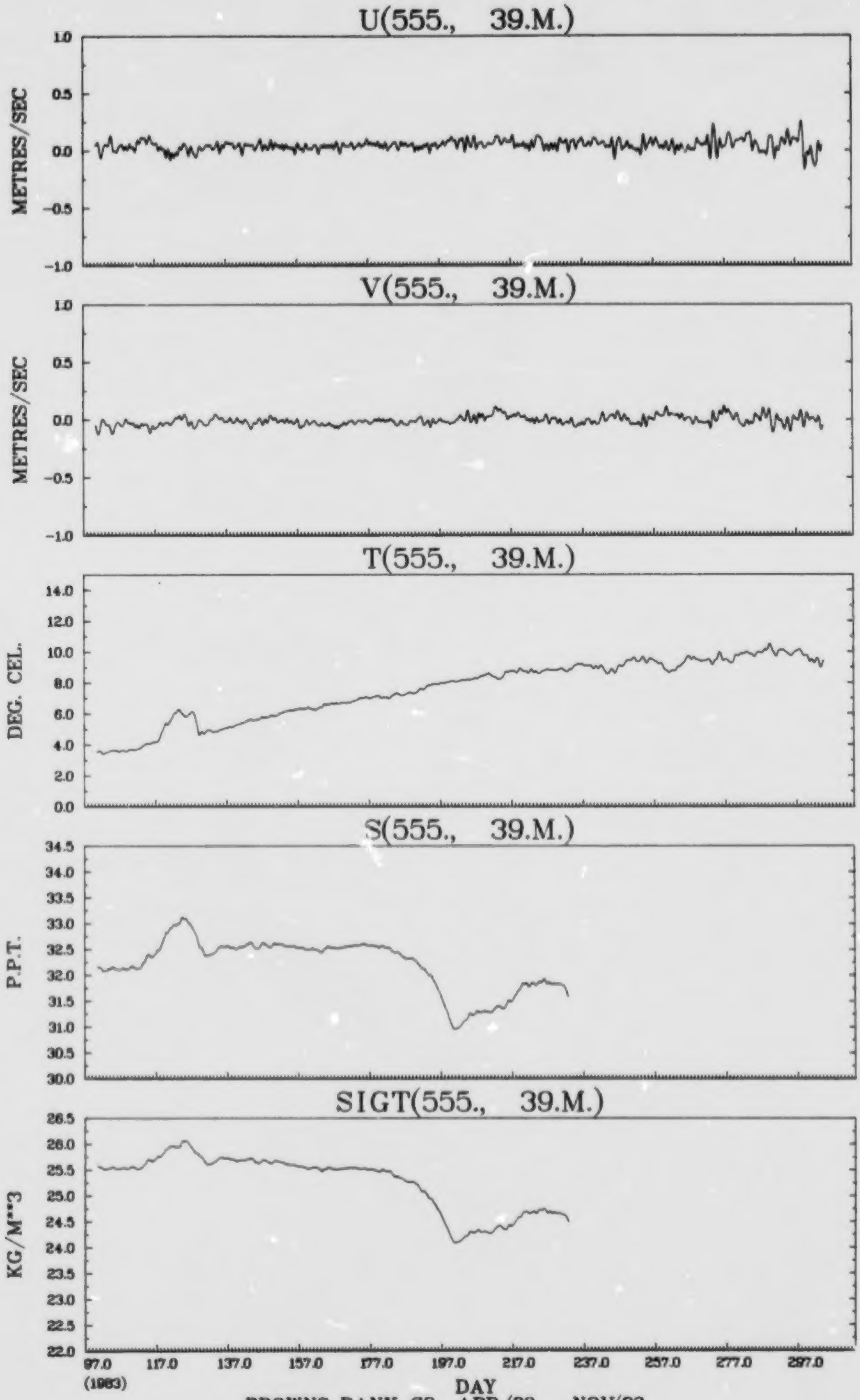

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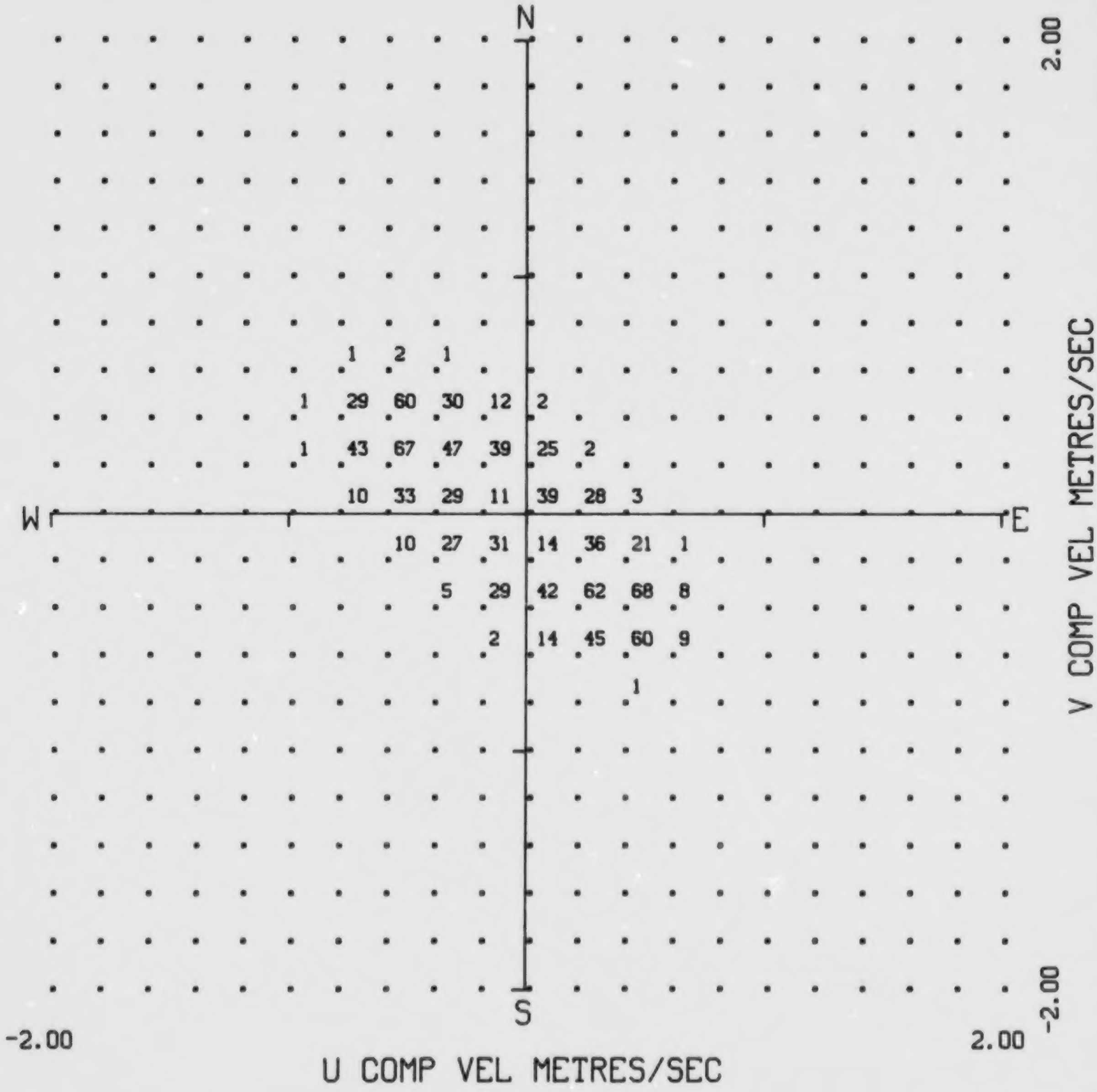

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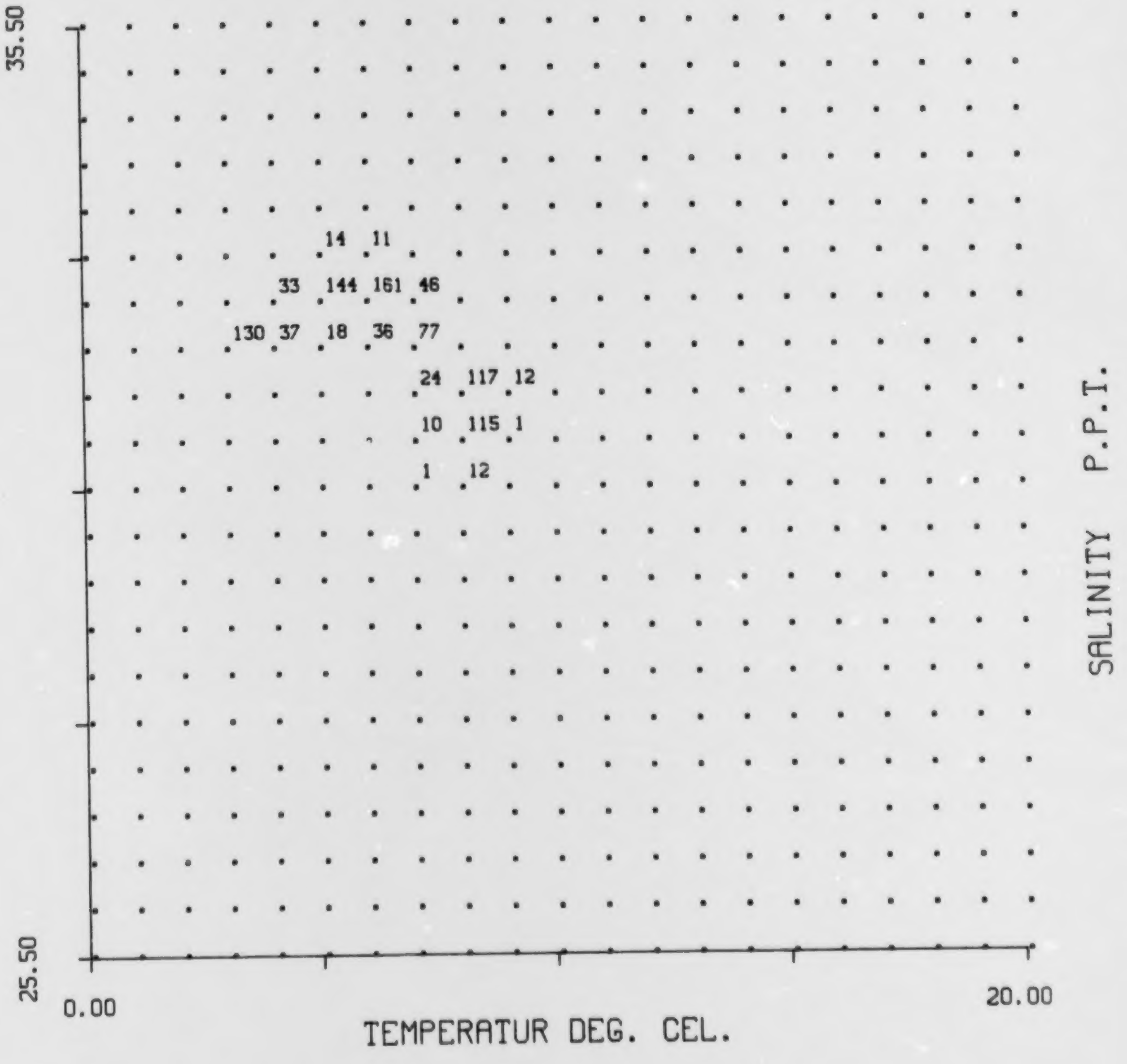

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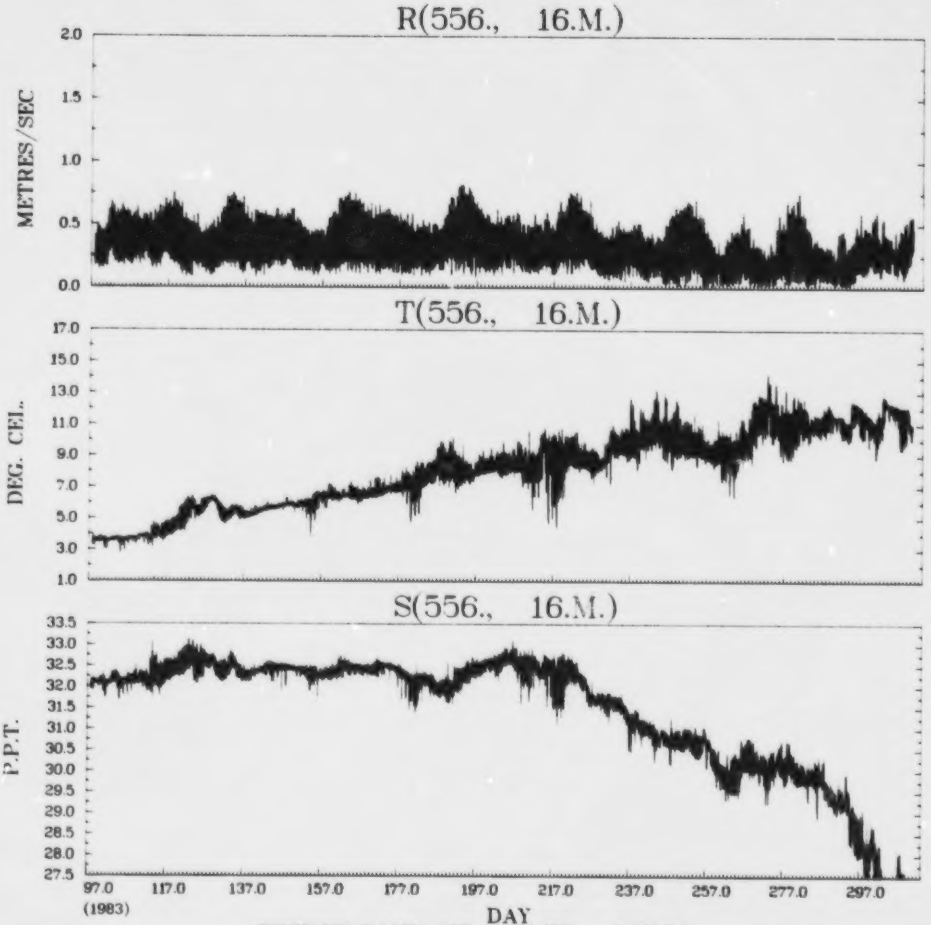

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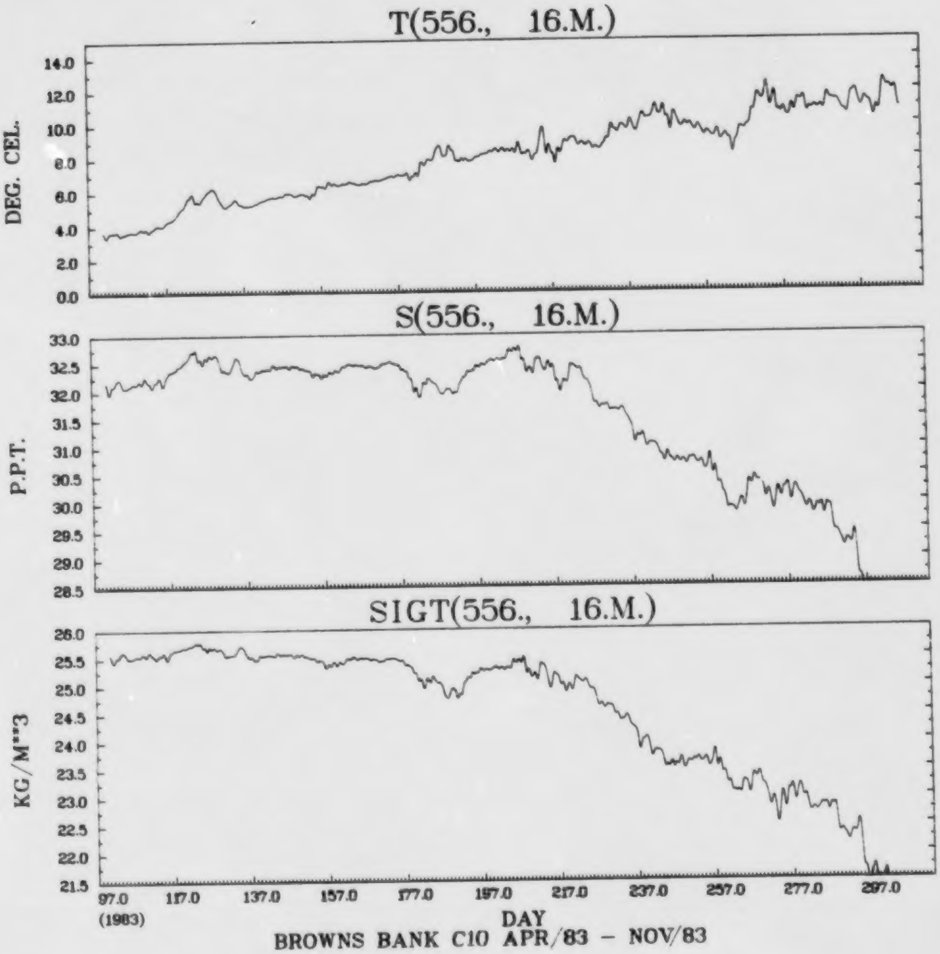

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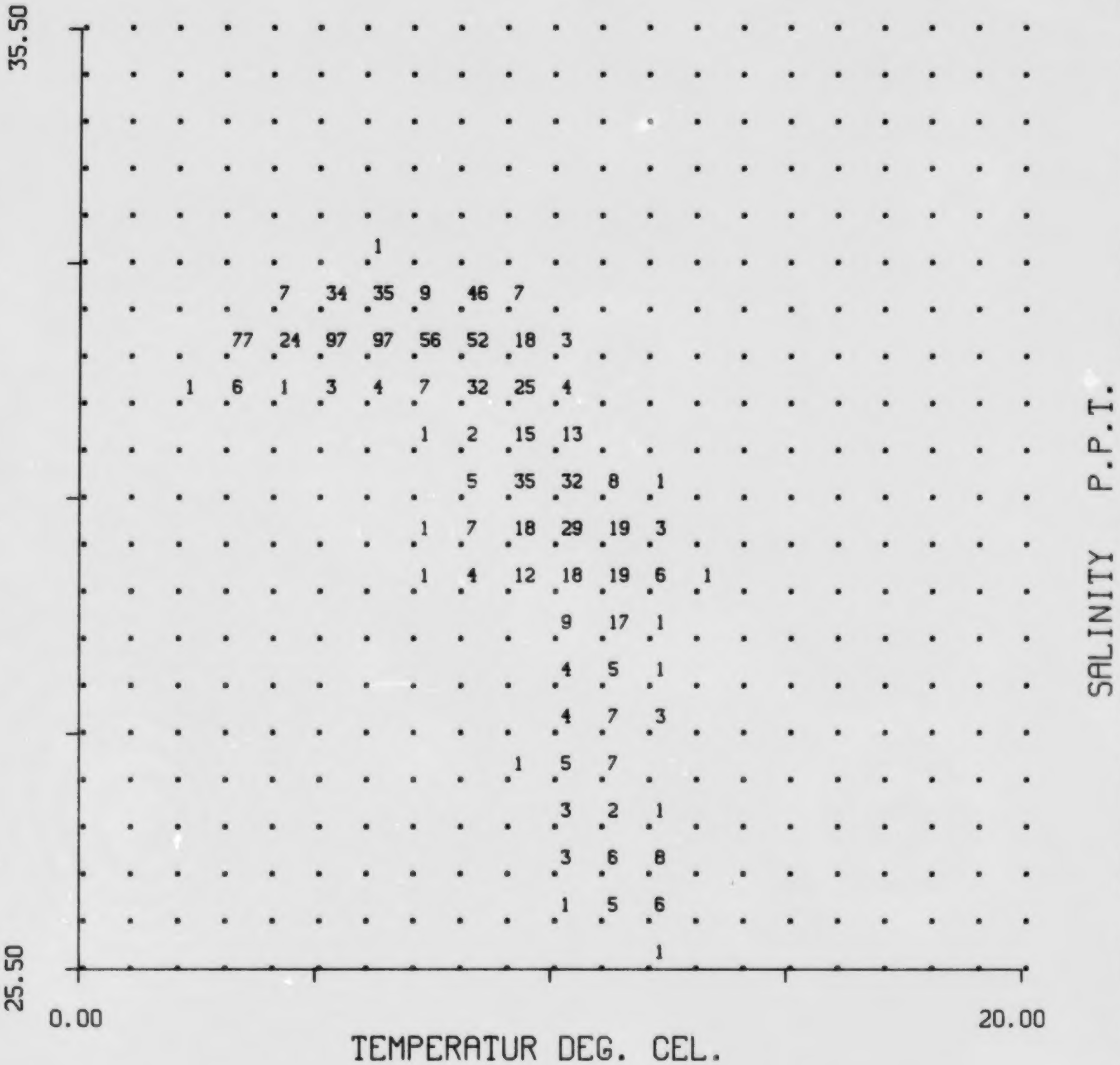

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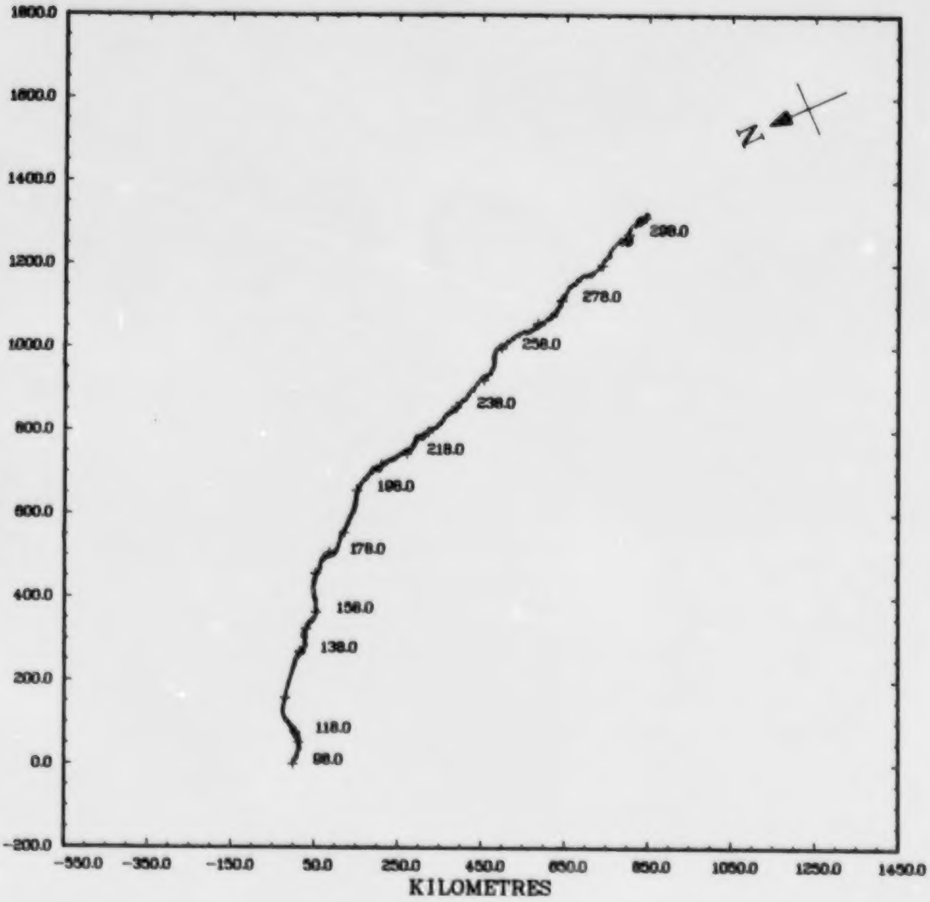

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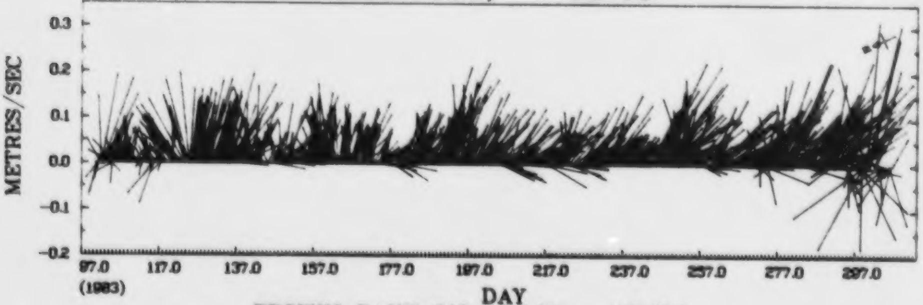

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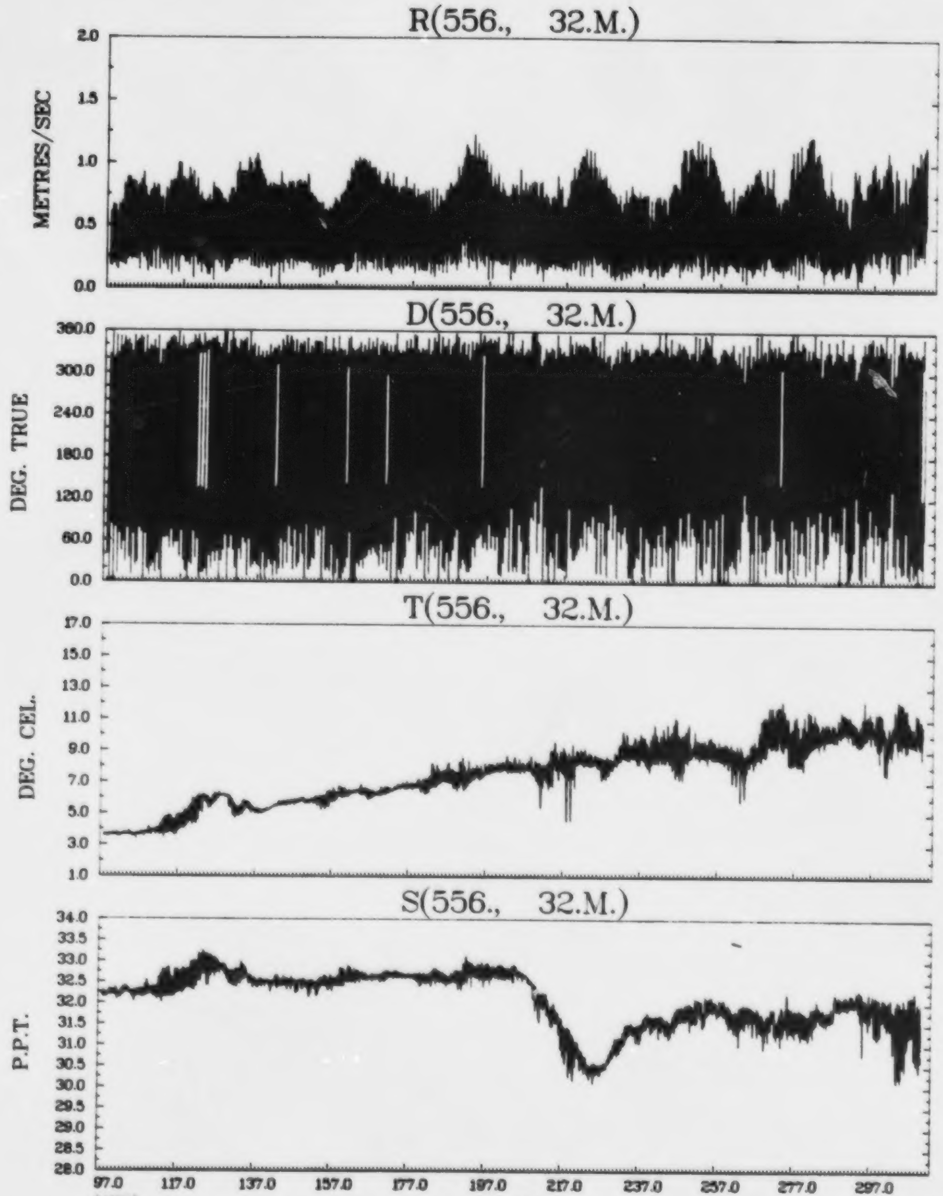

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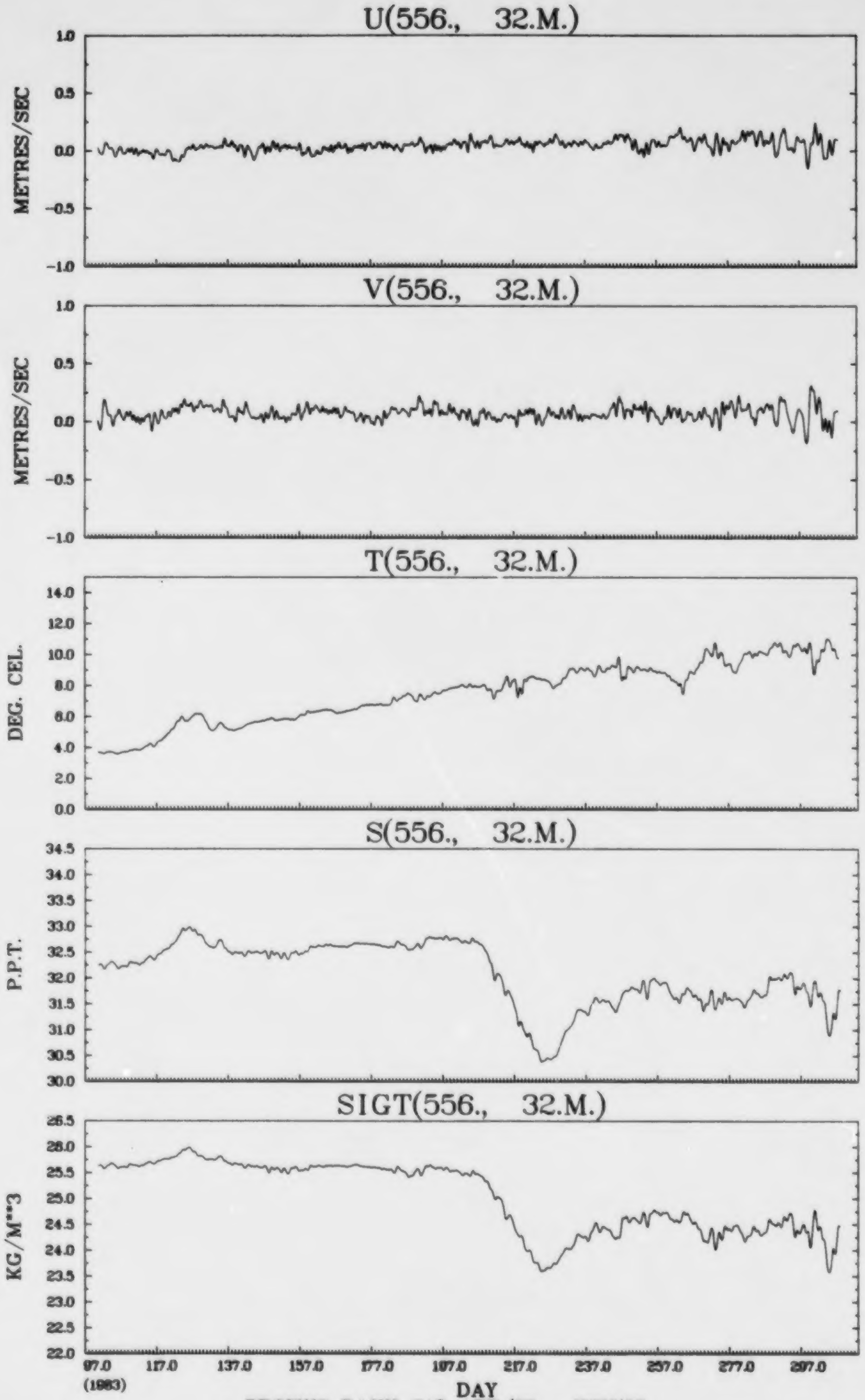

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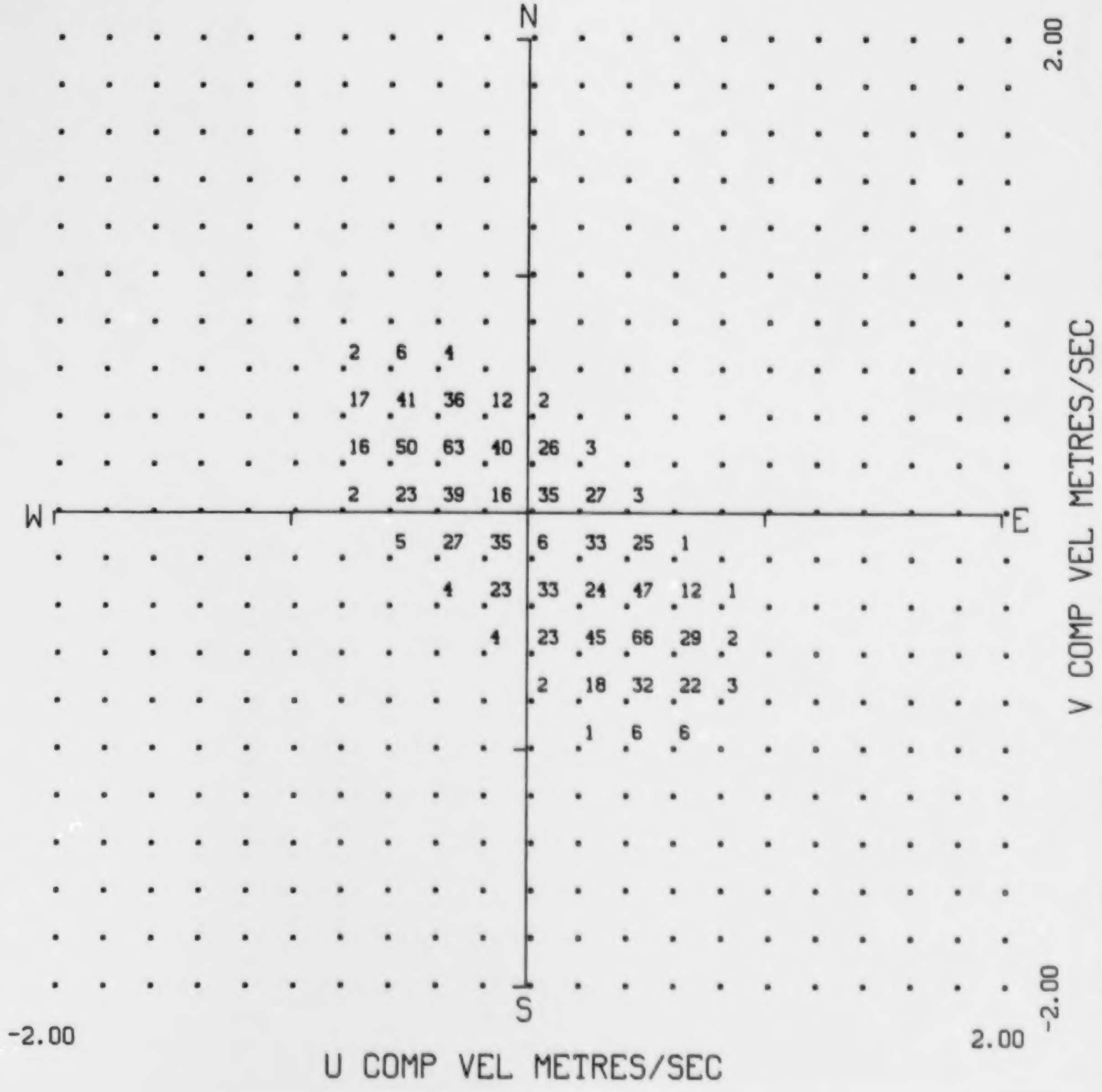

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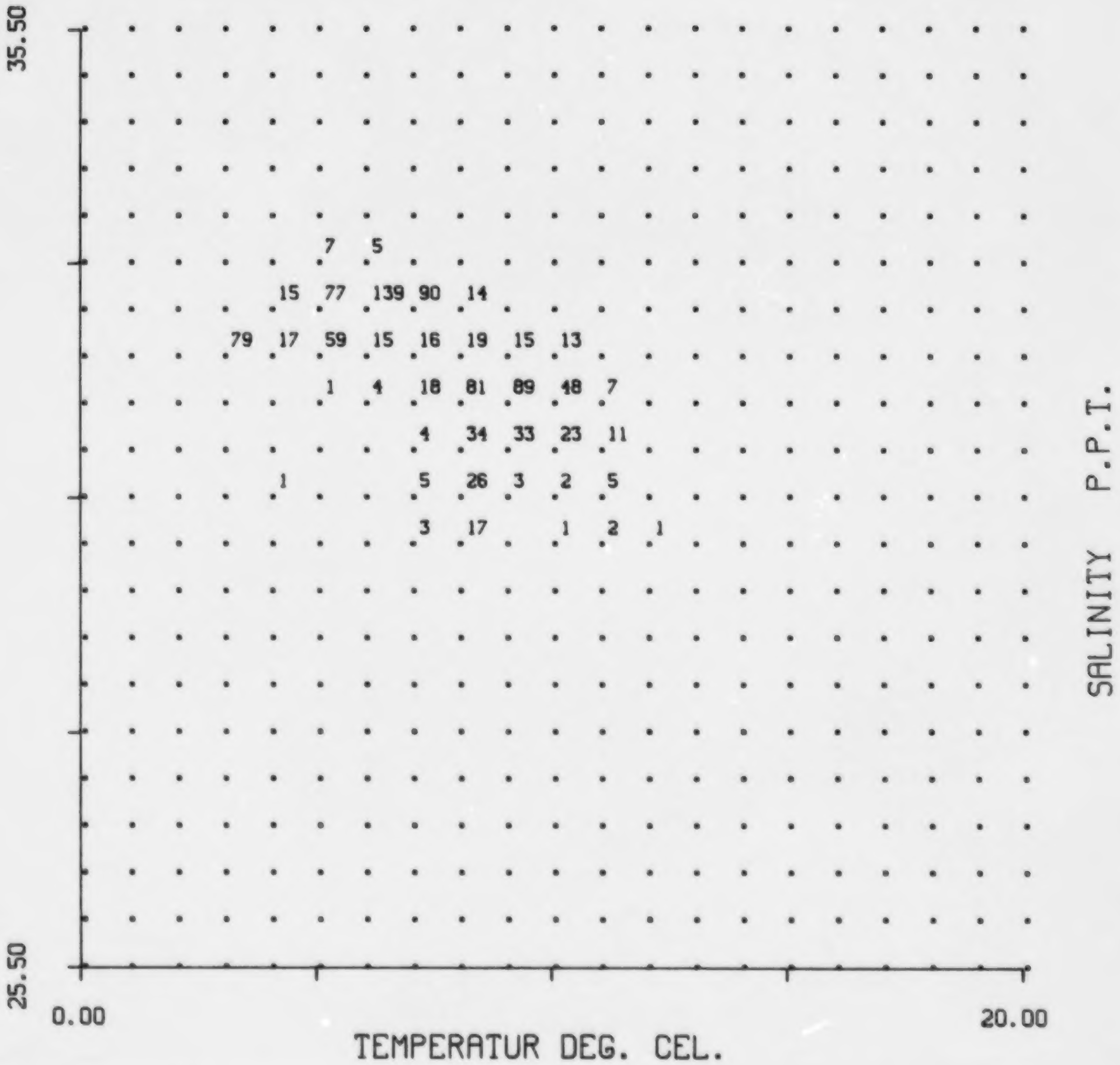

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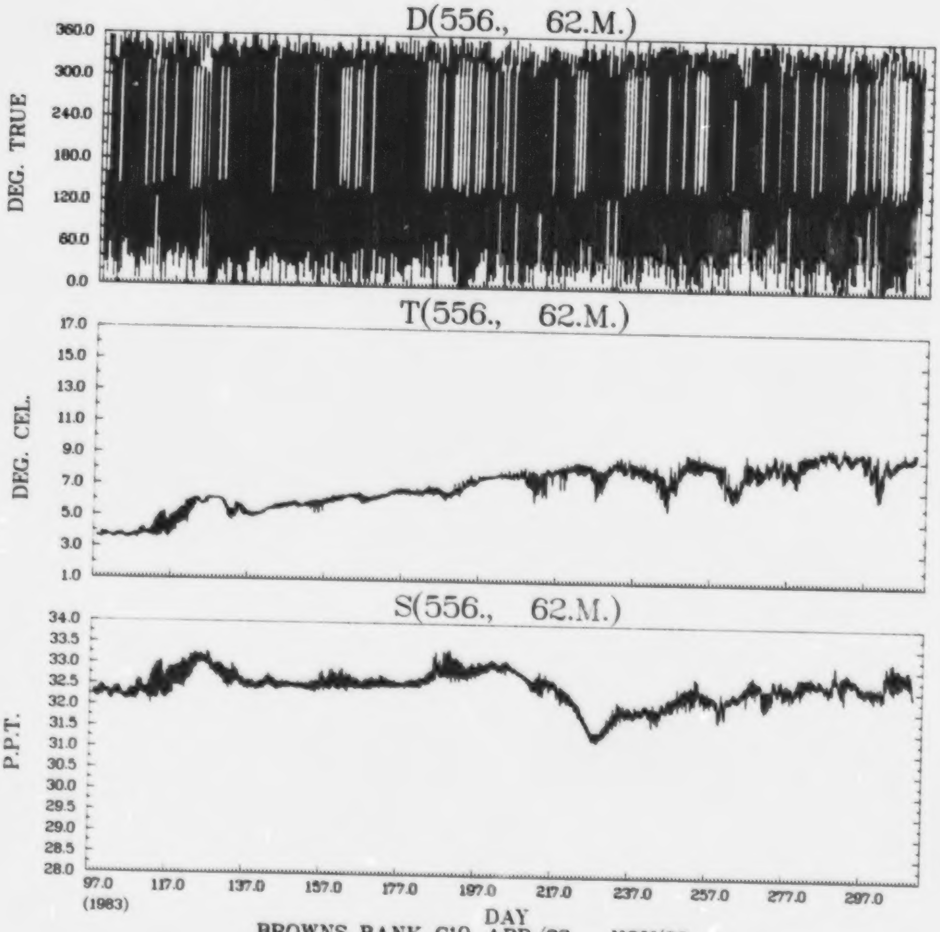

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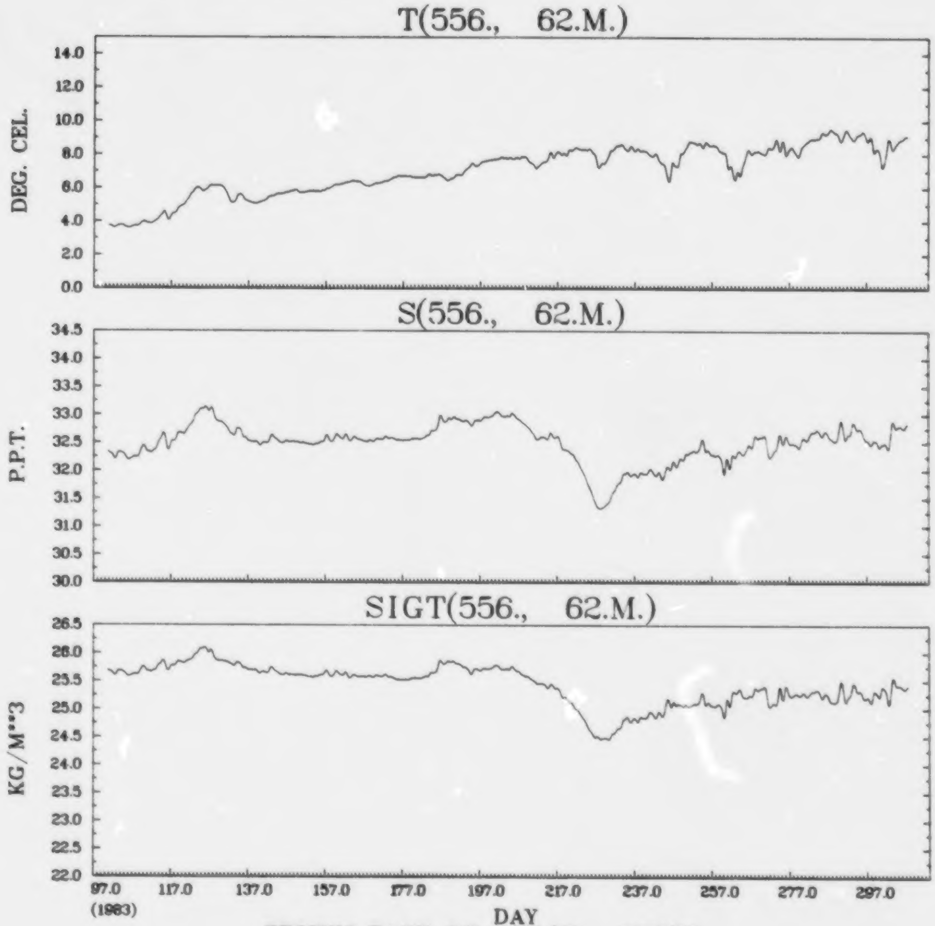

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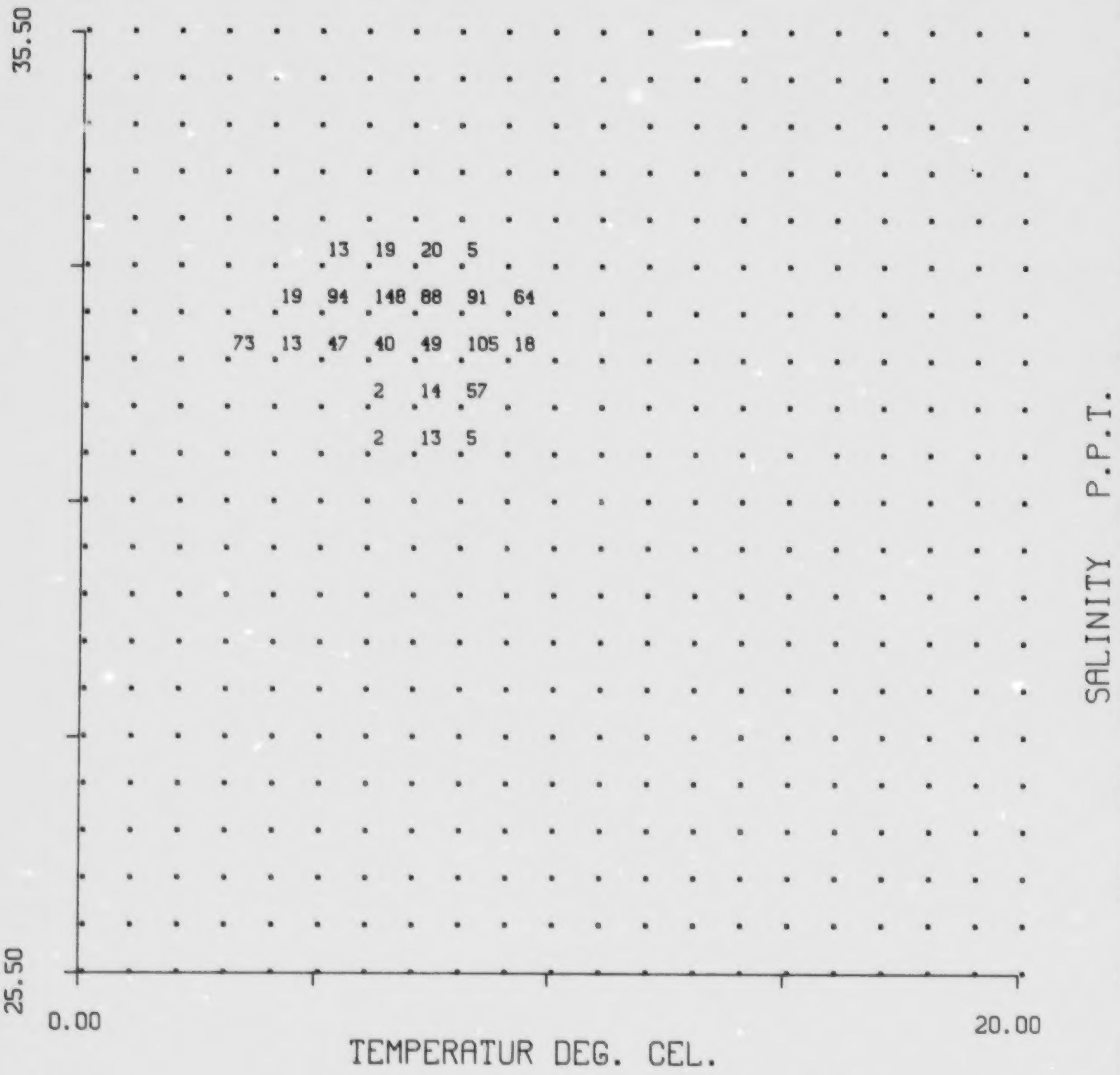

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CRUISE 83001 STATION 556 DEPTH 62 M.
START TIME 7/ 4/ 83 22:30: .0 GMT
FREQUENCY UNIT 0.1%

TABLE 11

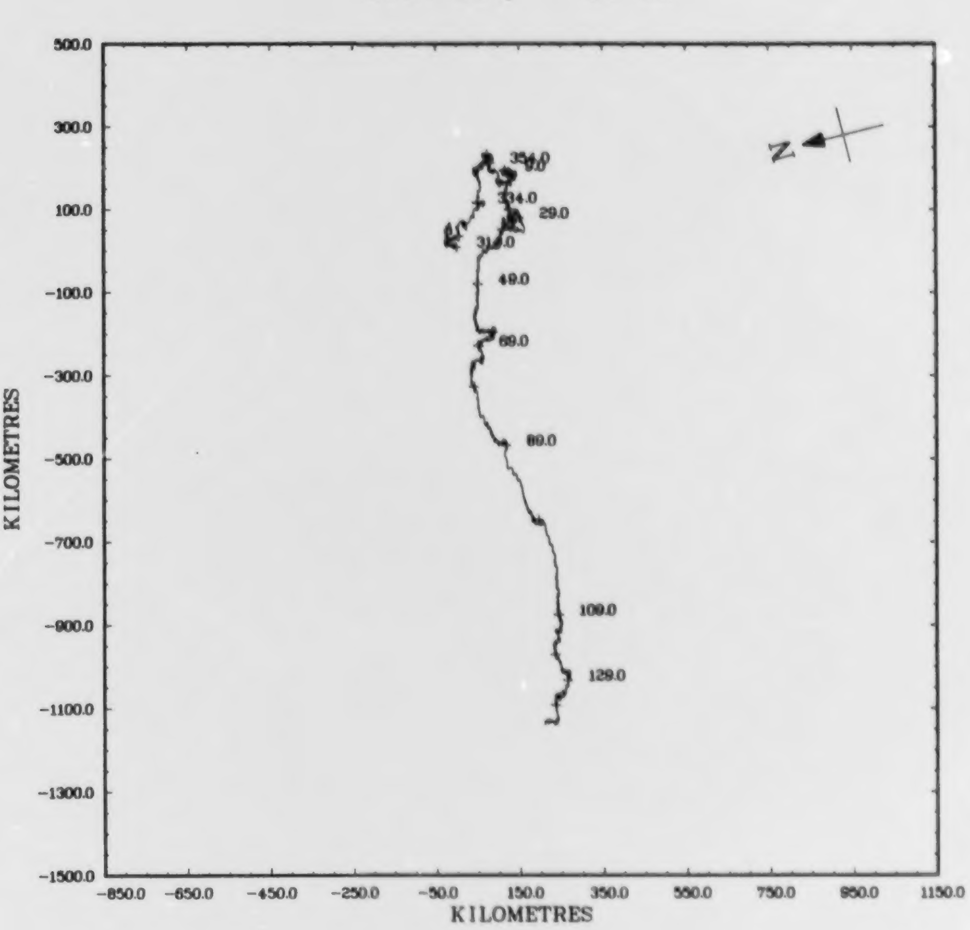
MOORING SUMMARY CRUISE 83-034

SITE/ STATION	DEPTH (M)	SOUNDING (M)	LATITUDE (NORTH)	LONGITUDE (WEST)	INST. NO.	TYPE*	START DATE	END DATE	COMMENTS
C2/589	15	110	43°02.95'	65°45.52'	7119	AAND	09/11/83	23/05/84	Moderate amount of marine growth.
	52	112	43°02.95'	65°45.73'	6408	AAND	09/11/83	23/05/84	
	102	112	43°02.95'	65°45.73'	6412	AAND	09/11/83	23/05/84	Some noise on conductivity sensor.
	110	110	43°02.95'	65°45.44'	346	ATG	09/11/83	23/05/84	
C3/590	6	101	42°51.47'	65°51.22'	498	VACM	06/11/83	16/03/84	Instrument missing on recovery, picked up on day 108, 1984, at Rockland, Maine, by fishing boat. Tape recorder stopped recording, the diode lead was broken and the rotor was missing on day 76, 1984.
	27	107	42°51.54'	65°51.49'	4299	AAND	06/11/83	25/05/84	Moderate amount of marine growth. Some noise on conductivity sensor.
	47	107	42°51.51	65°51.49'	4346	AAND	06/11/83	25/05/84	Some noise on conductivity sensor.
	97	107	42°51.51	65°51.49'	5569	AAND	06/11/83	25/05/84	Some noise on conductivity sensor.
C7/591	22	117	42°50.94'	66°09.41'	7130	AAND	04/11/83	25/05/84	Moderate amount of marine growth.
	35	115	42°50.90'	66°09.25'	786	AAND	04/11/83	25/05/84	An apparent failure of the recording head cause noisy data throughout the record. Data became very noisy between day 329 and day 340, 1983. Temperature, salinity, and rate were edited heavily during these dates. Time clock showed inst. missed one cycle on day 330, 1983, a cycle was inserted on that date. Small amount of hairy marine growth.
	55	115	42°50.90'	66°09.25'	822	AAND	04/11/83	25/05/84	Some noise on conductivity sensor.
	105	115	42°50.90'	66°09.25'	2663	AAND	04/11/83	25/05/84	Some noise on conductivity sensor.

TABLE 11 (Continued)

SITE/ STATION	DEPTH (M)	SOUNDING (M)	LATITUDE (NORTH)	LONGITUDE (WEST)	INST. NO.	TYPE*	START DATE	END DATE	COMMENTS
C8/592	16	111	42°42.28'	66°25.08'	7131	AAND	08/11/83	19/02/84	Instrument broke loose, picked up by fishermen on day 65, 1984. Battery went dead on day 50, 1984.
	30	110	42°42.28'	66°24.85'	3298	AAND	08/11/83	24/05/84	Some noise on the conductivity sensor and the reference channel.
	50	110	42°42.28'	66°24.85'	3299	AAND	08/11/83	NO DATA	No data was recorded, tape was not threaded to the take up spool.
	100	110	42°42.28'	66°24.85'	3300	AAND	08/11/83	24/05/84	Some noise on conductivity sensor.
C9/593	13	53	42°46.37'	66°10.97'	497	VACM	03/11/83	24/05/84	Mooring had apparently been hit by a trawler and moved, mooring recovered by dragging. Rotor was missing when recovered, instrument was severely tangled in the ground line. Rate, U and V cycles were dropped after day 342, 1983.
	38	53	42°46.41'	66°11.10'	7123	AAND	03/11/83	24/05/84	Mooring had apparently been hit by a trawler and moved, mooring recovered by dragging. Rotor was missing when recovered, instrument was severely tangled in the ground line. Rate cycles were dropped after day 75, 1984.
C10/594	16	71	42°48.52'	66°01.97'	4154	AAND	06/11/83	24/05/84	Moderate amount of marine growth. Some noise on conductivity sensor.
	31	71	42°48.39'	66°01.88'	3579	AAND	06/11/83	24/05/84	Some noise on the conductivity sensor. Data appears to be missing cycles at the end of the record, tape appears to have lost contact with the recording head.
	61	71	42°48.39'	66°01.88'	3581	AAND	06/11/83	24/05/84	Some noise on conductivity sensor.

* AAND = AANDERAA CURRENT METER, VACM = VECTOR AVERAGE CURRENT METER, ATG = AANDERAA TIDE GAUGE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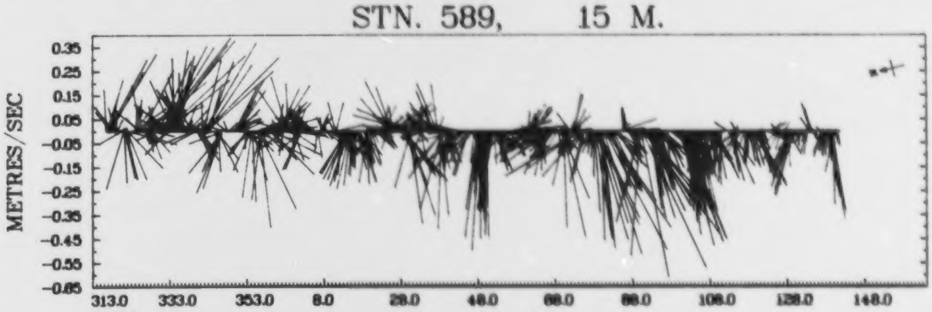
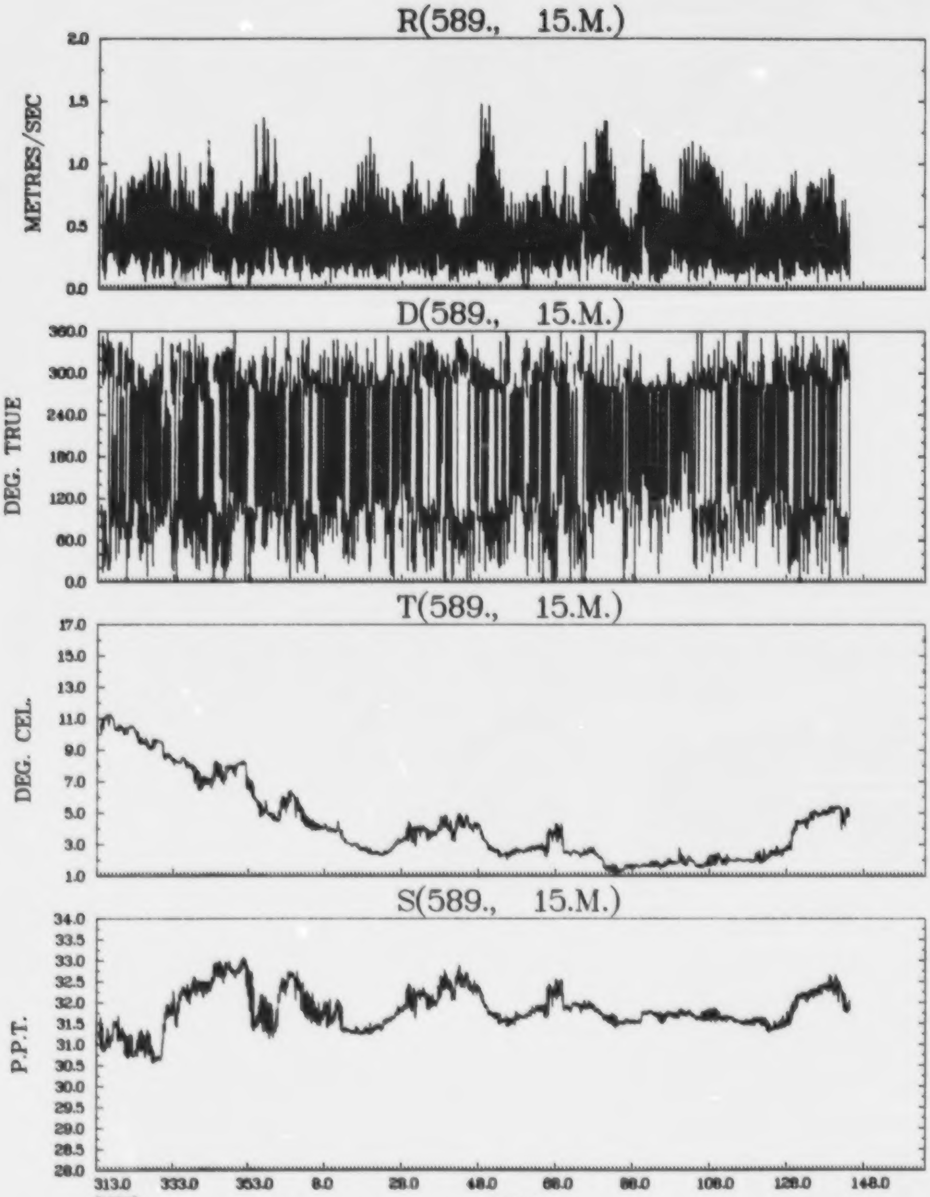

STN. 589, 15 M.

BROWNS BANK C2 NOV/83 - MAY/84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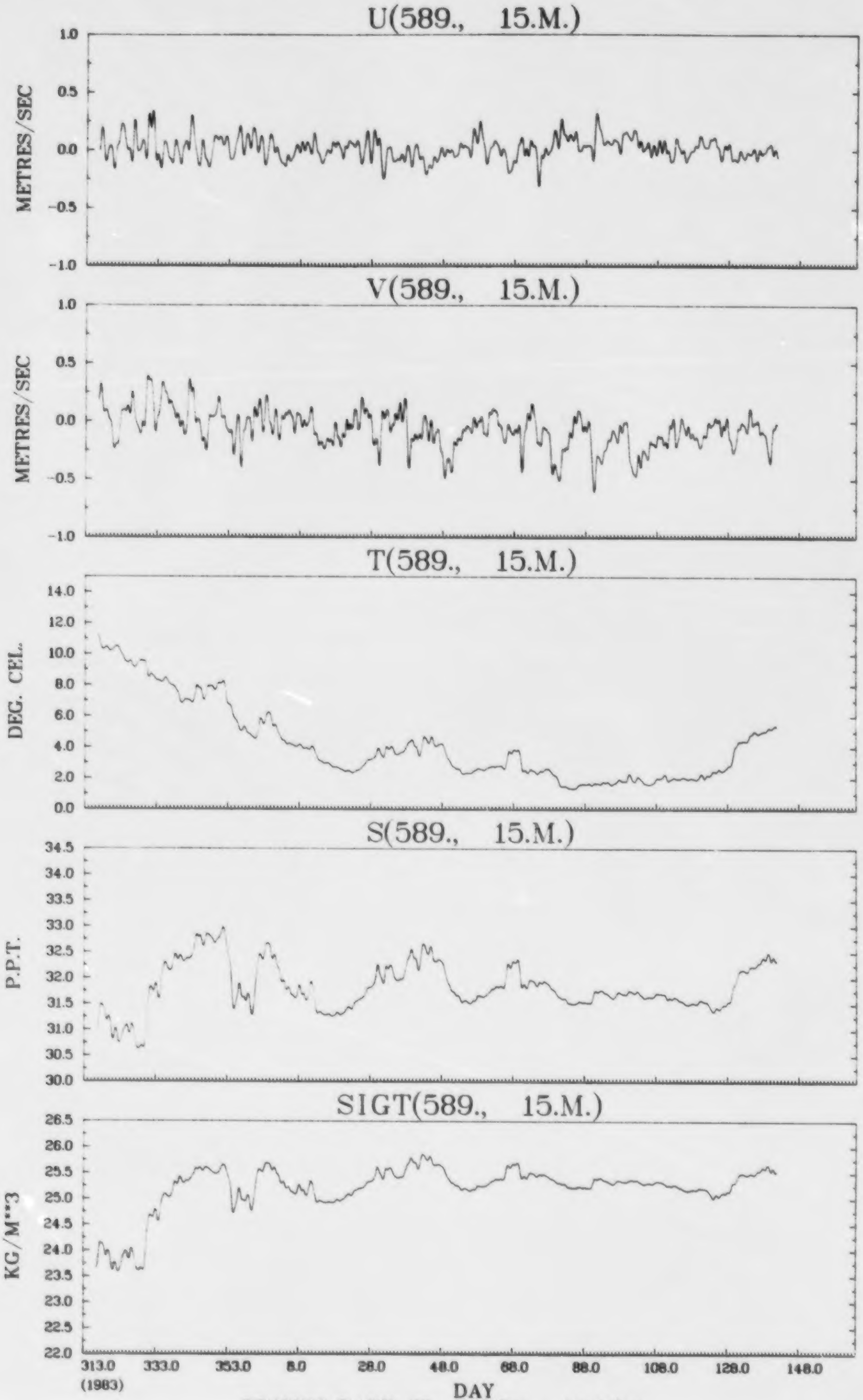
D(589., 15.M.)

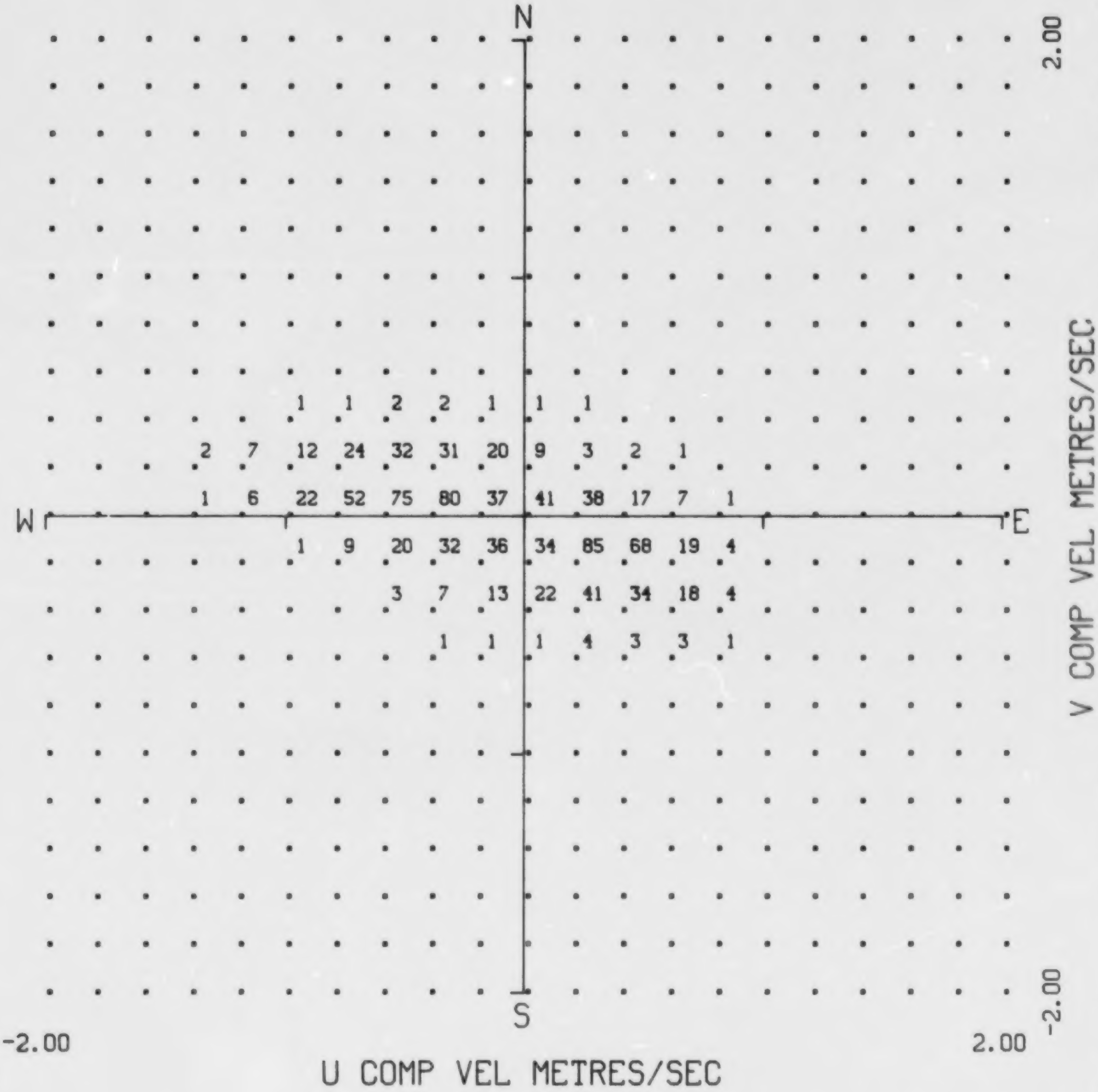
T(589., 15.M.)

S(589., 15.M.)

BROWNS BANK C2 NOV/83 - MAY/84



BROWNS BANK C2 NOV/83 - MAY/84



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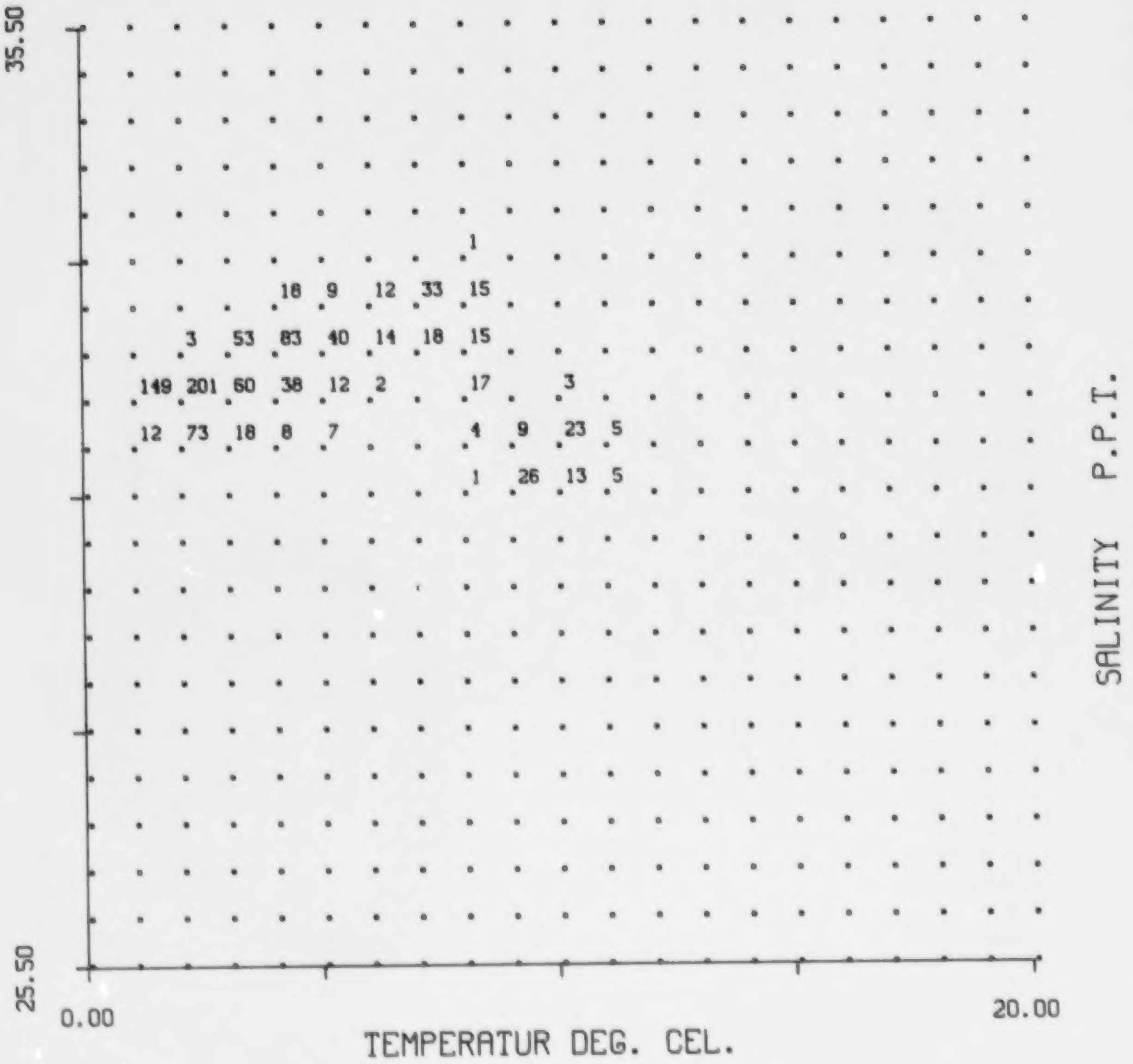

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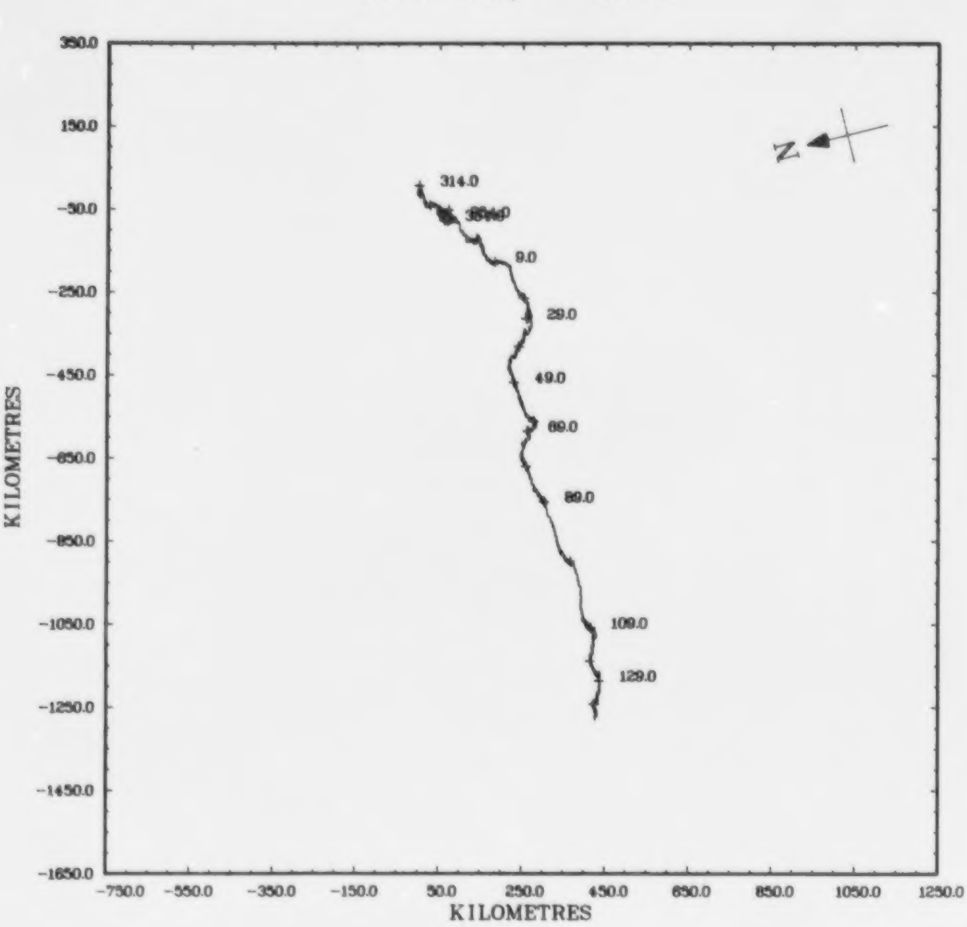

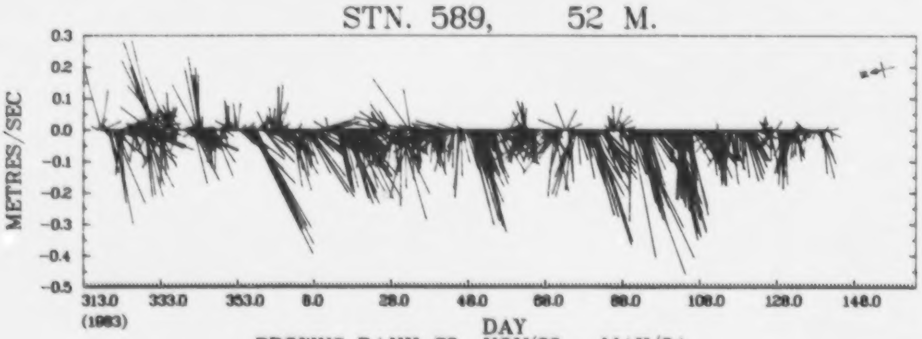

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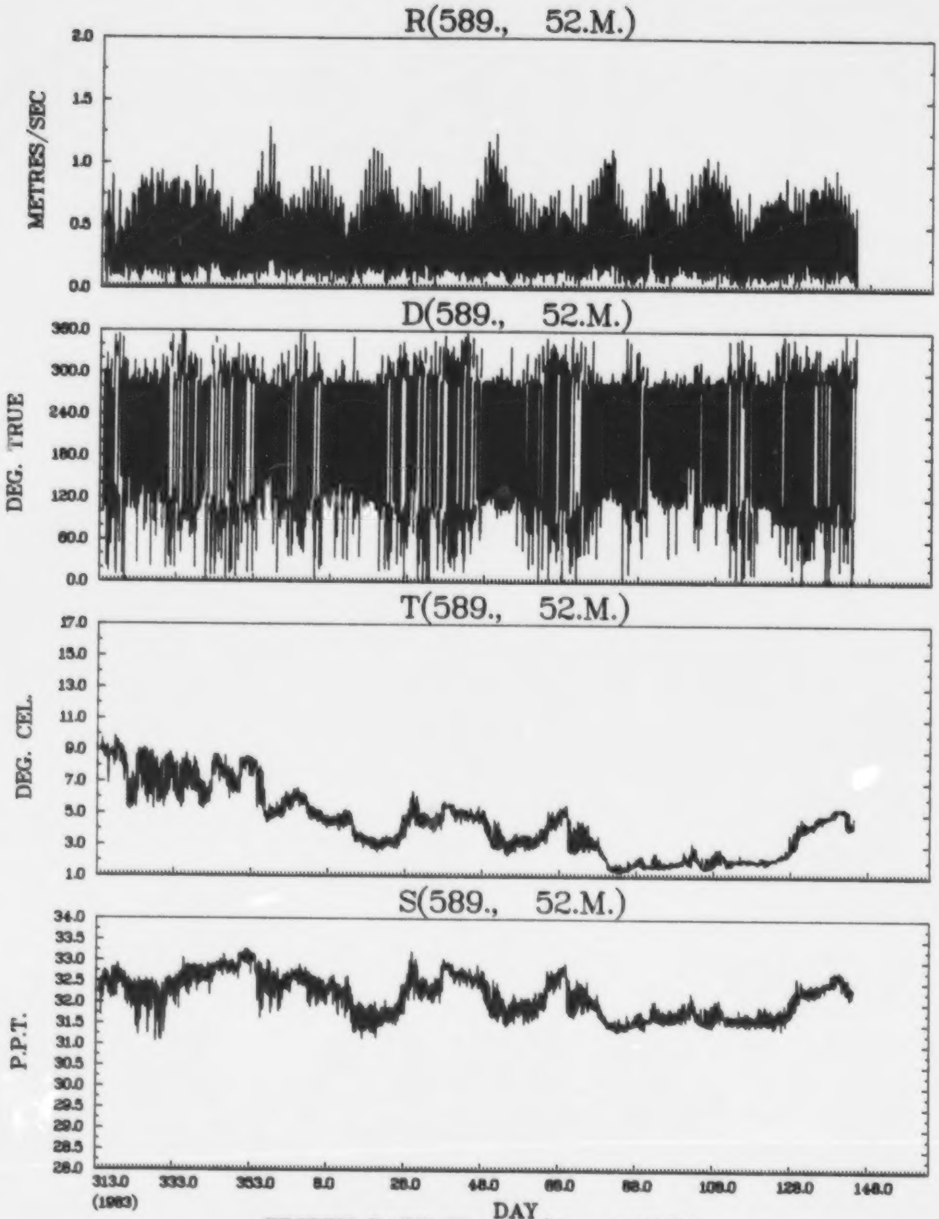
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D(589., 52.M.)

T(589., 52.M.)

S(589., 52.M.)

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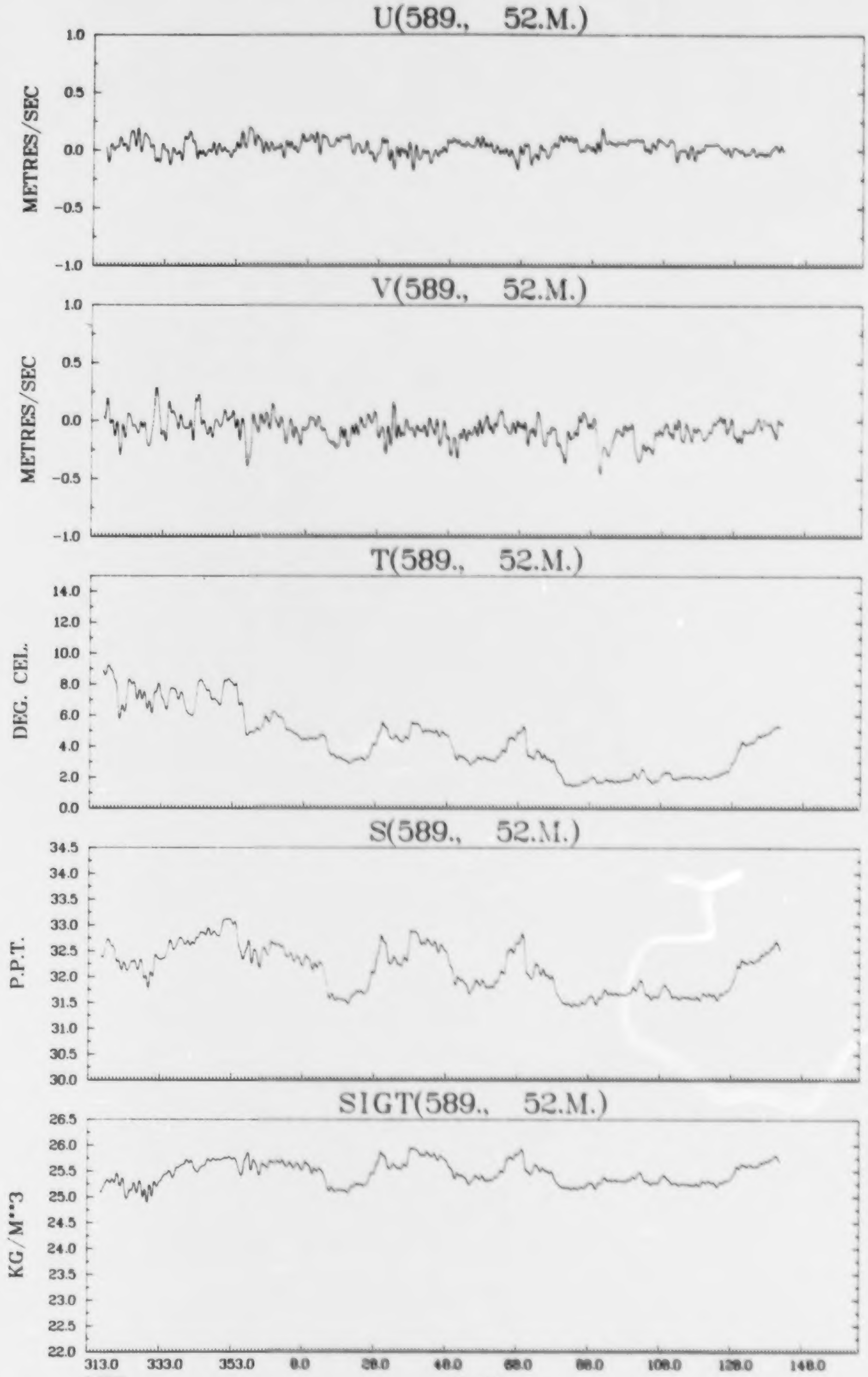
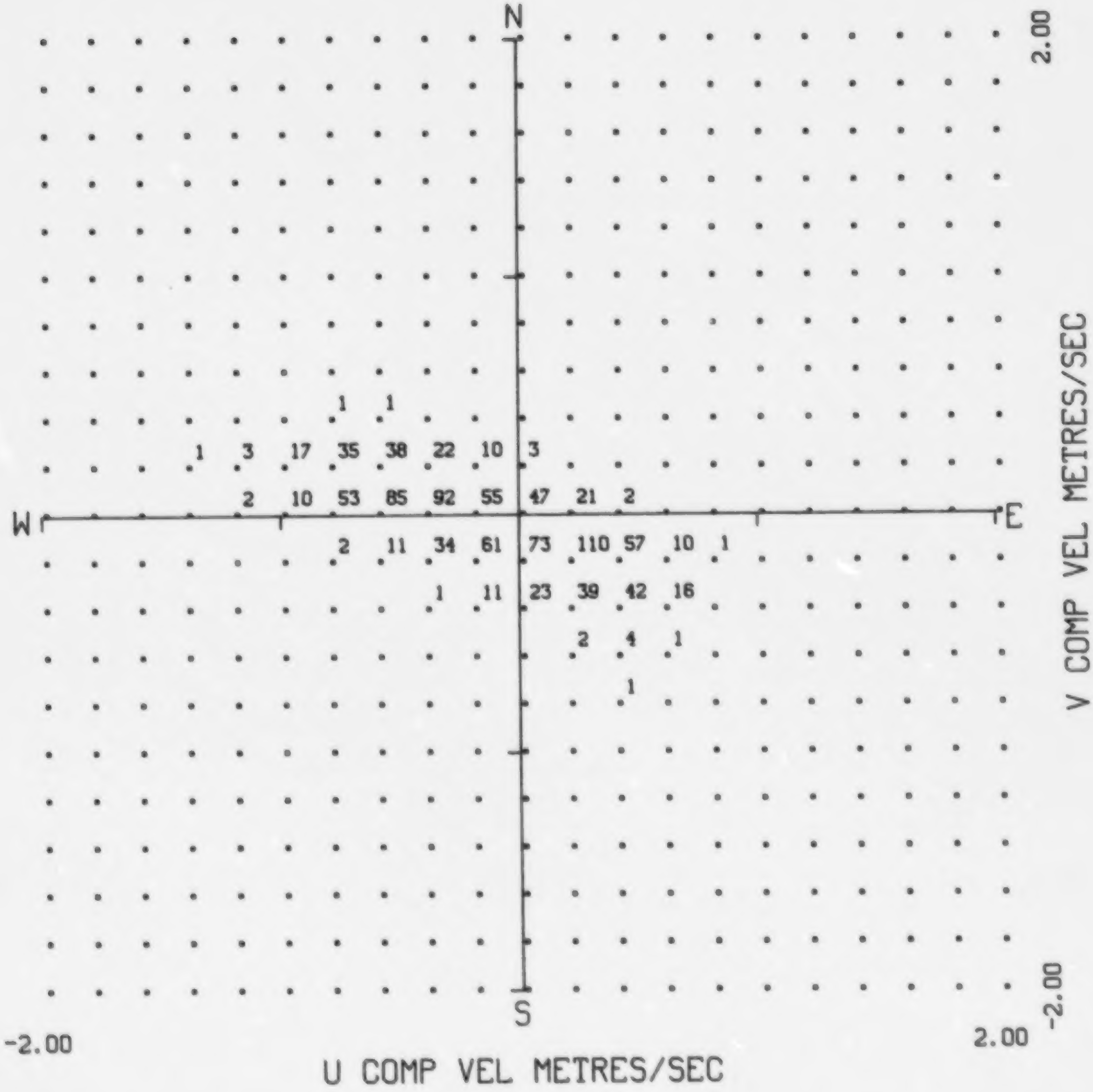


BROWNS BANK C2 NOV/83 - MAY/84



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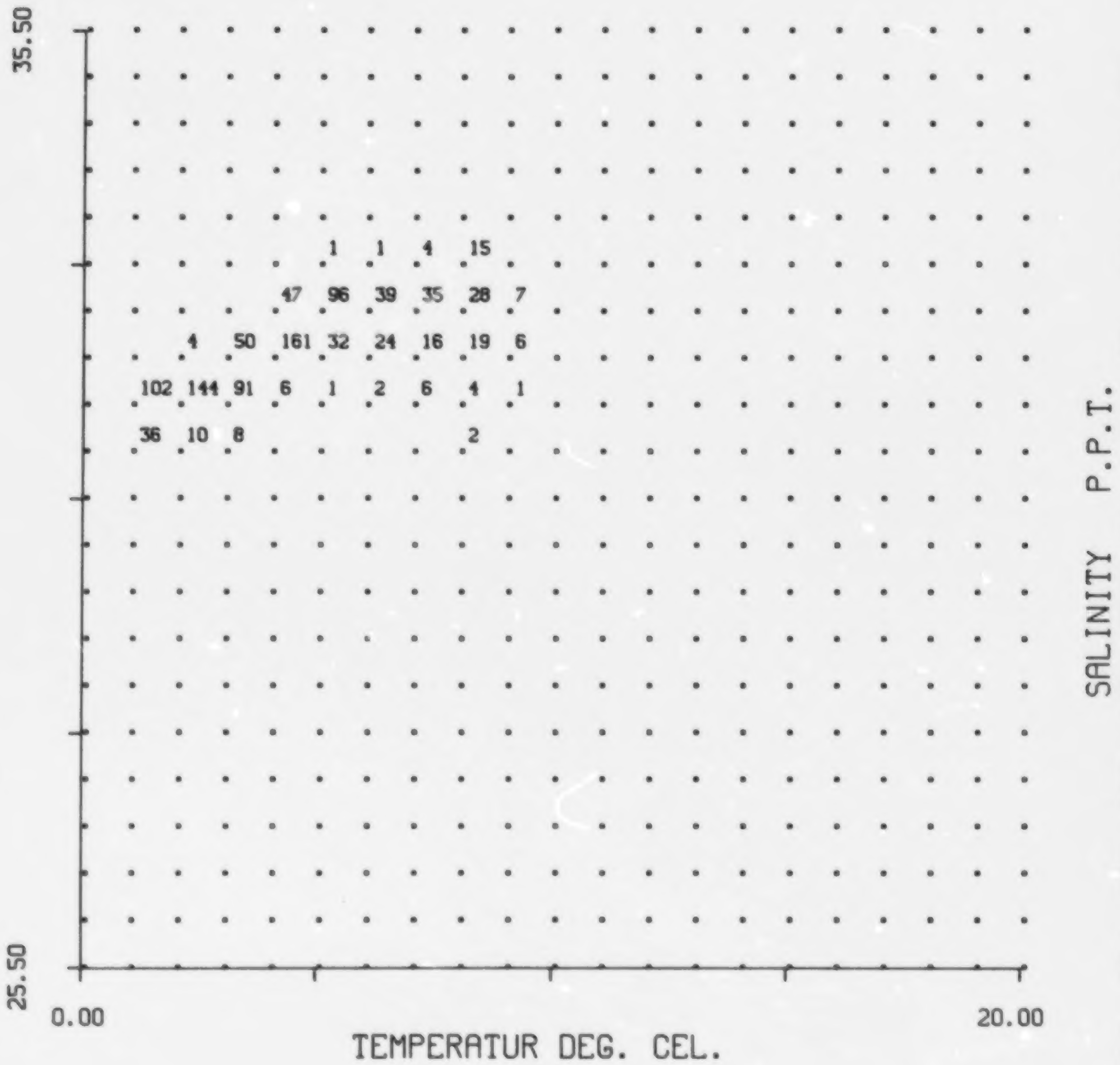

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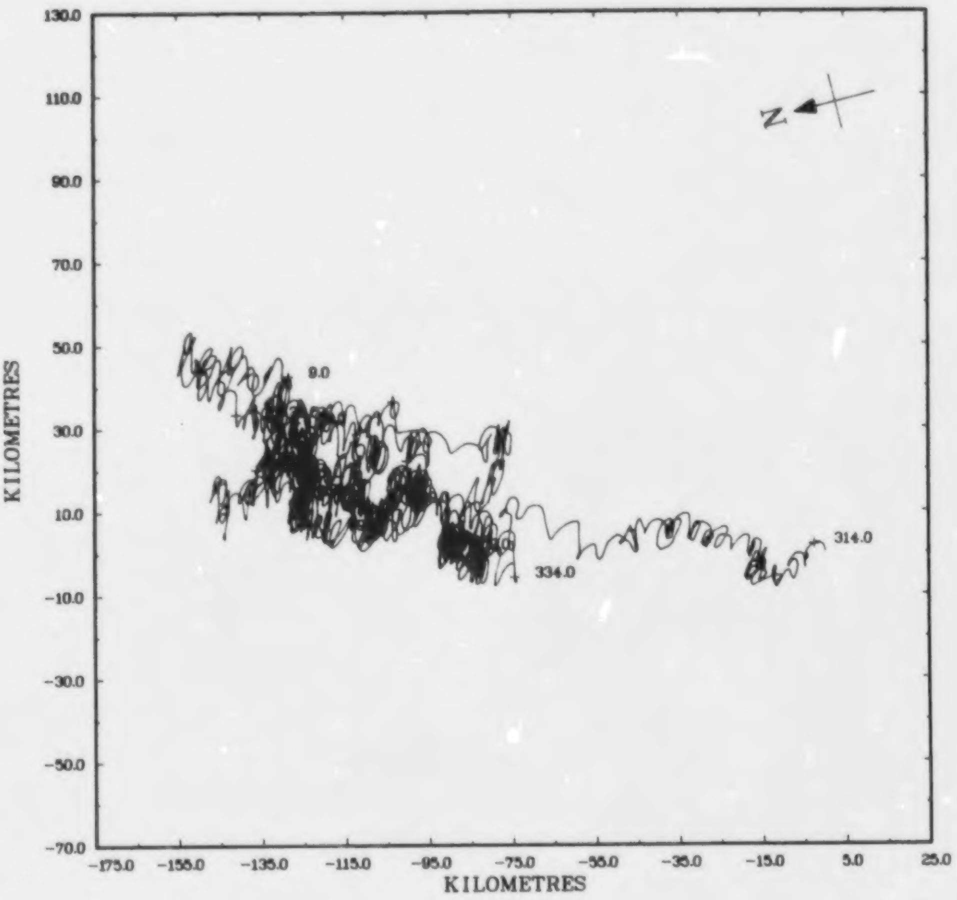
STN. 589, 102 M.



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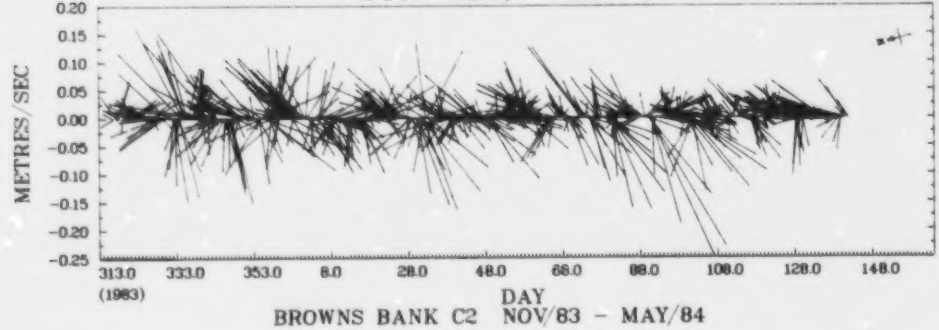
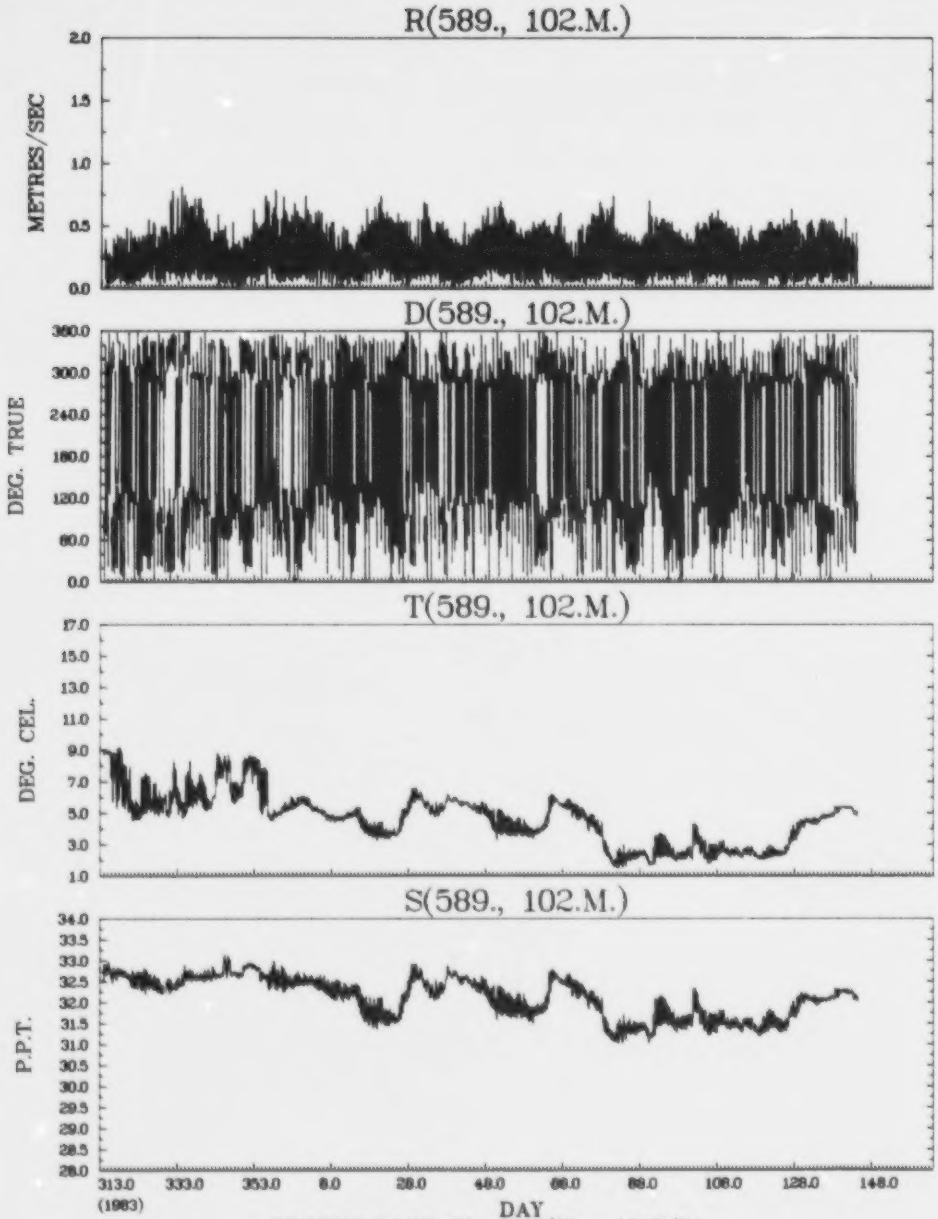


BROWNS BANK C2 NOV/83 - MAY/84



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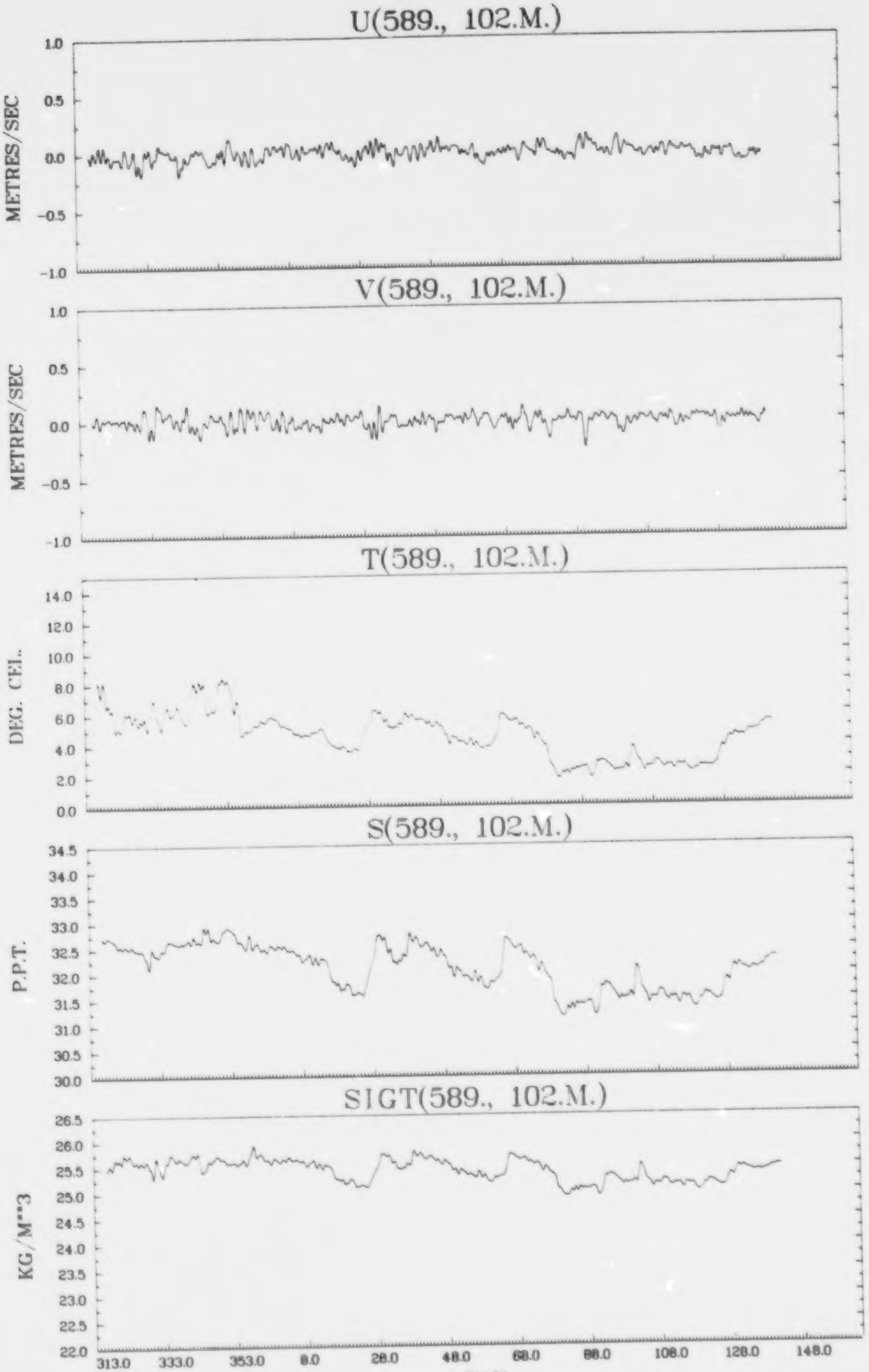

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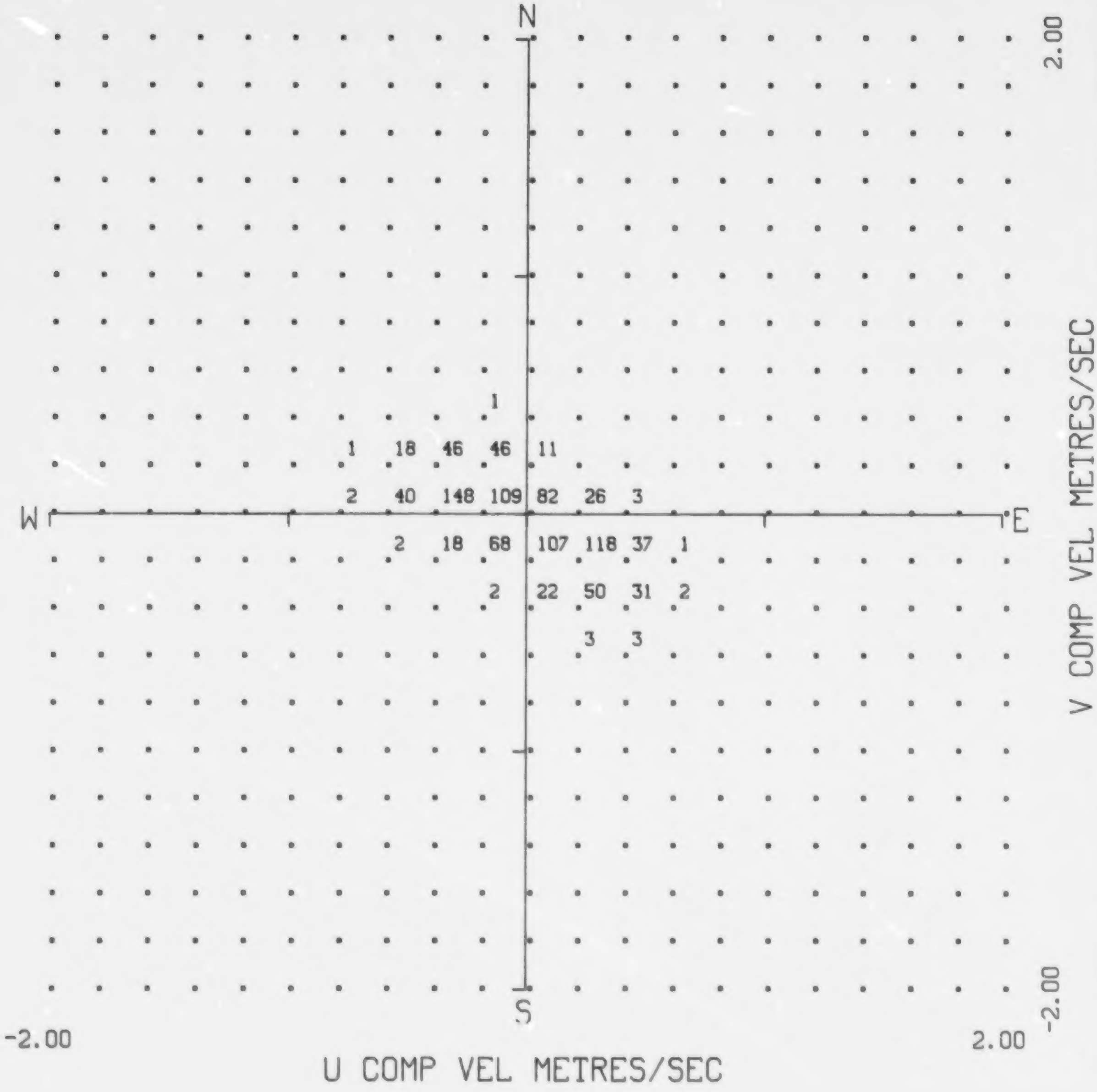

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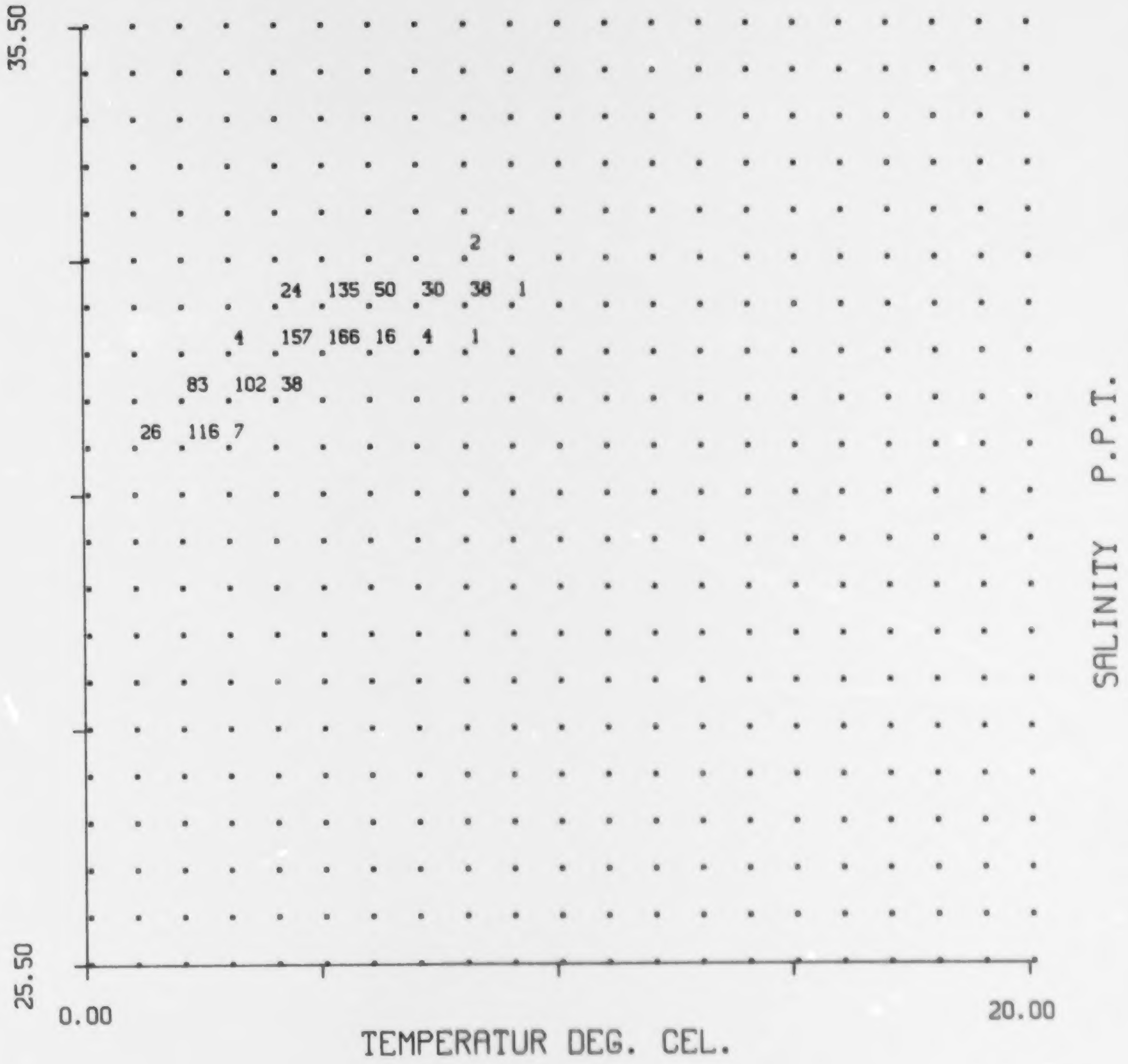

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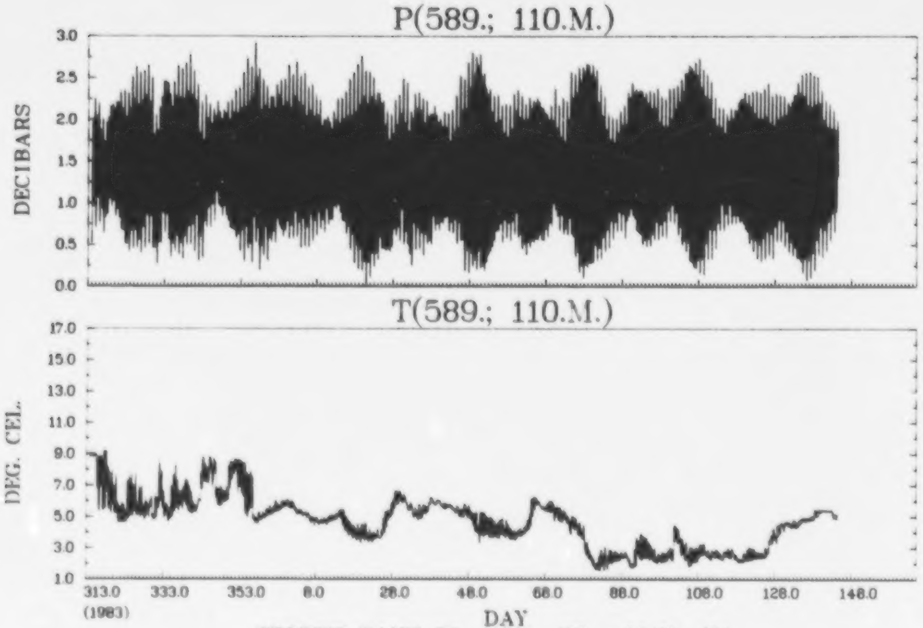

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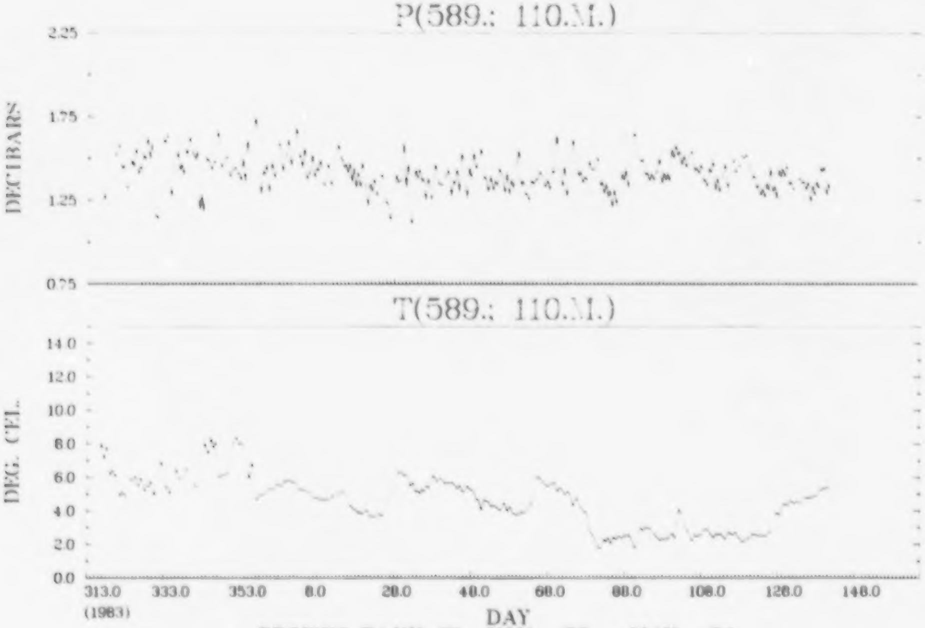

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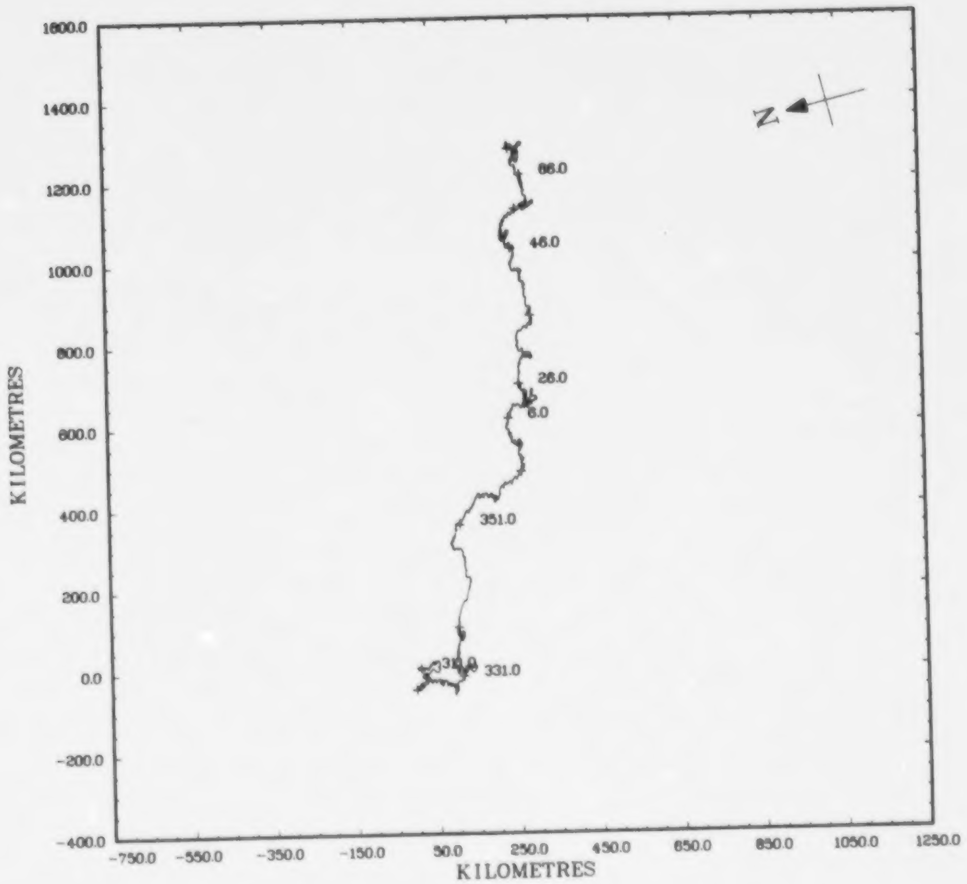
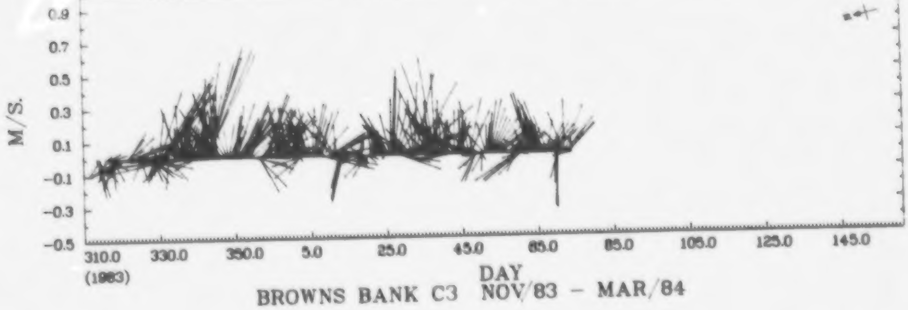
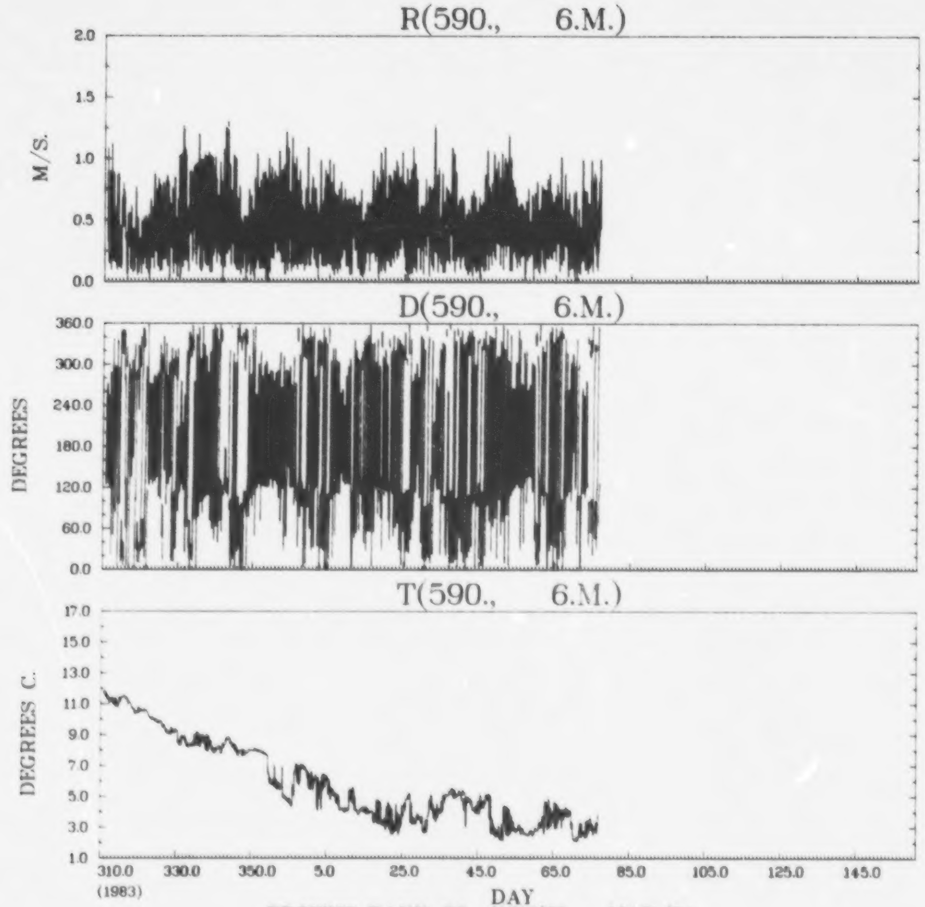
STN. 590, 6 M.



STN. 590, 6 M.



BROWNS BANK C3 NOV/83 - MAR/84



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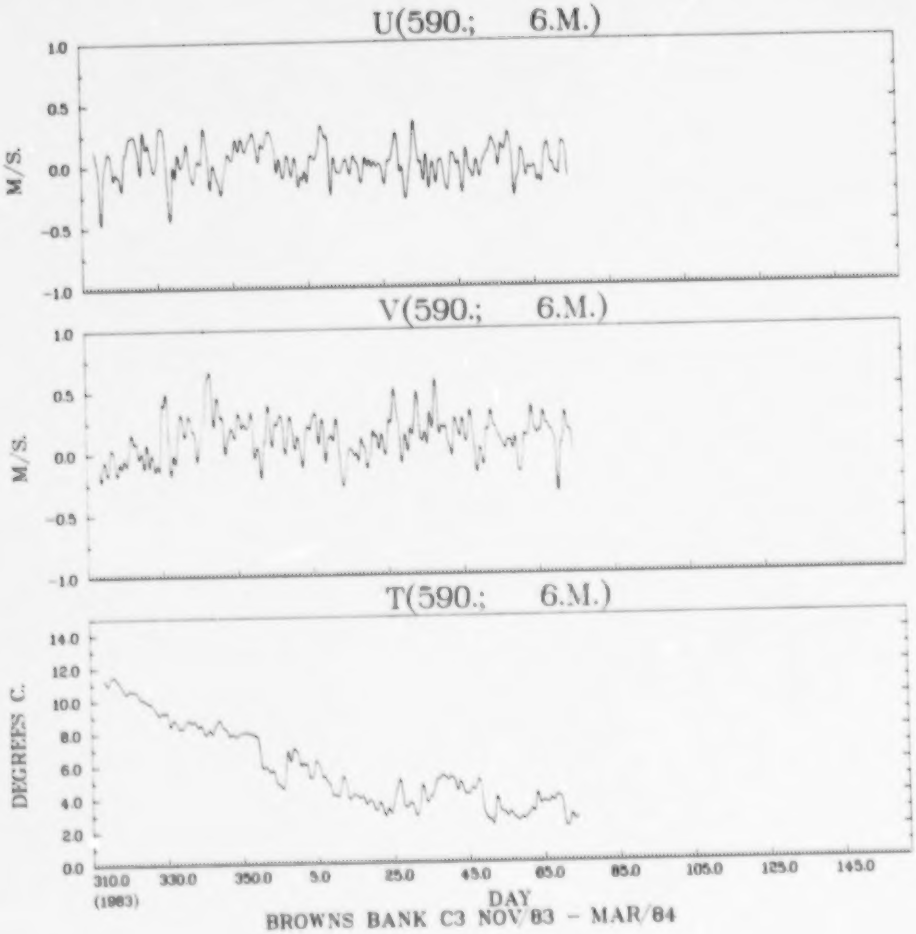

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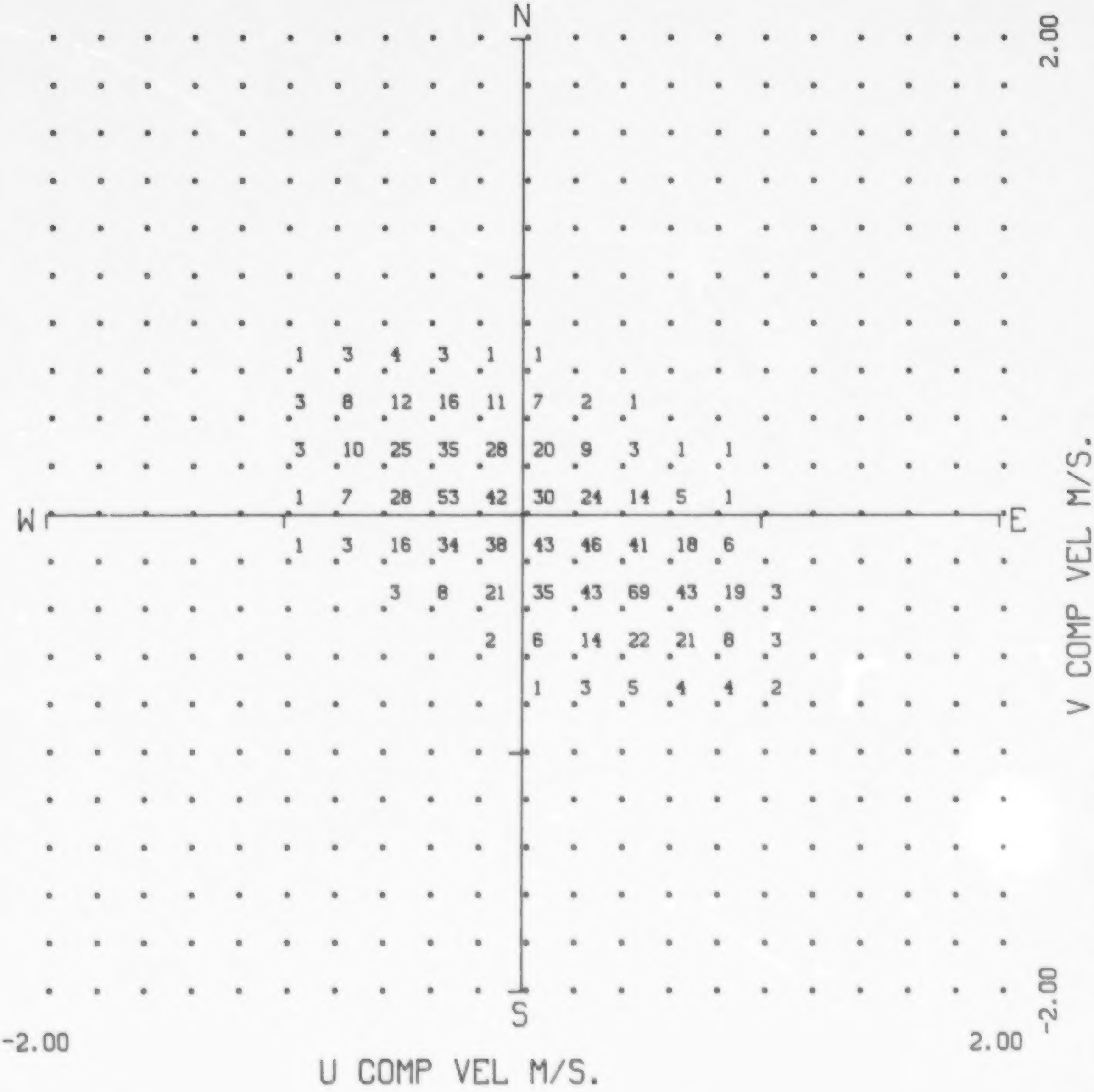

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START TIME 6/11/1983 19:15: .0 GMT
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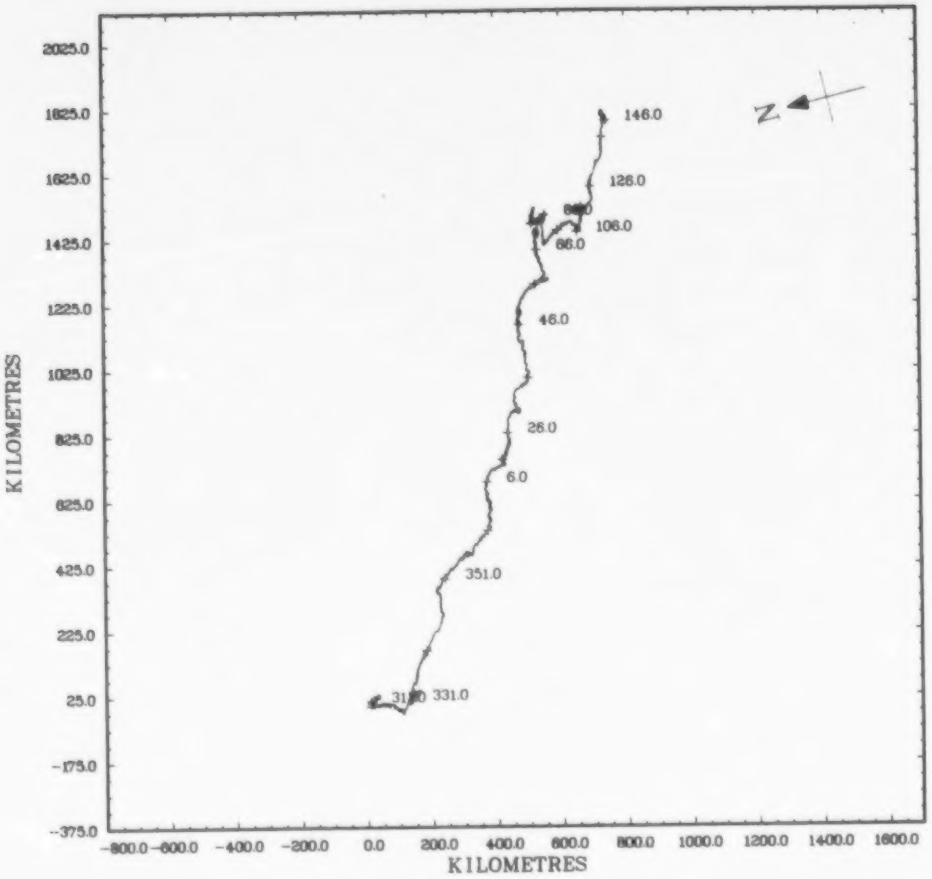
STN. 590, 27 M.



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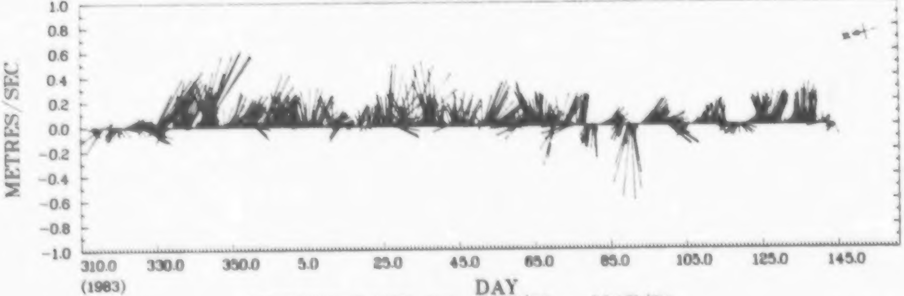

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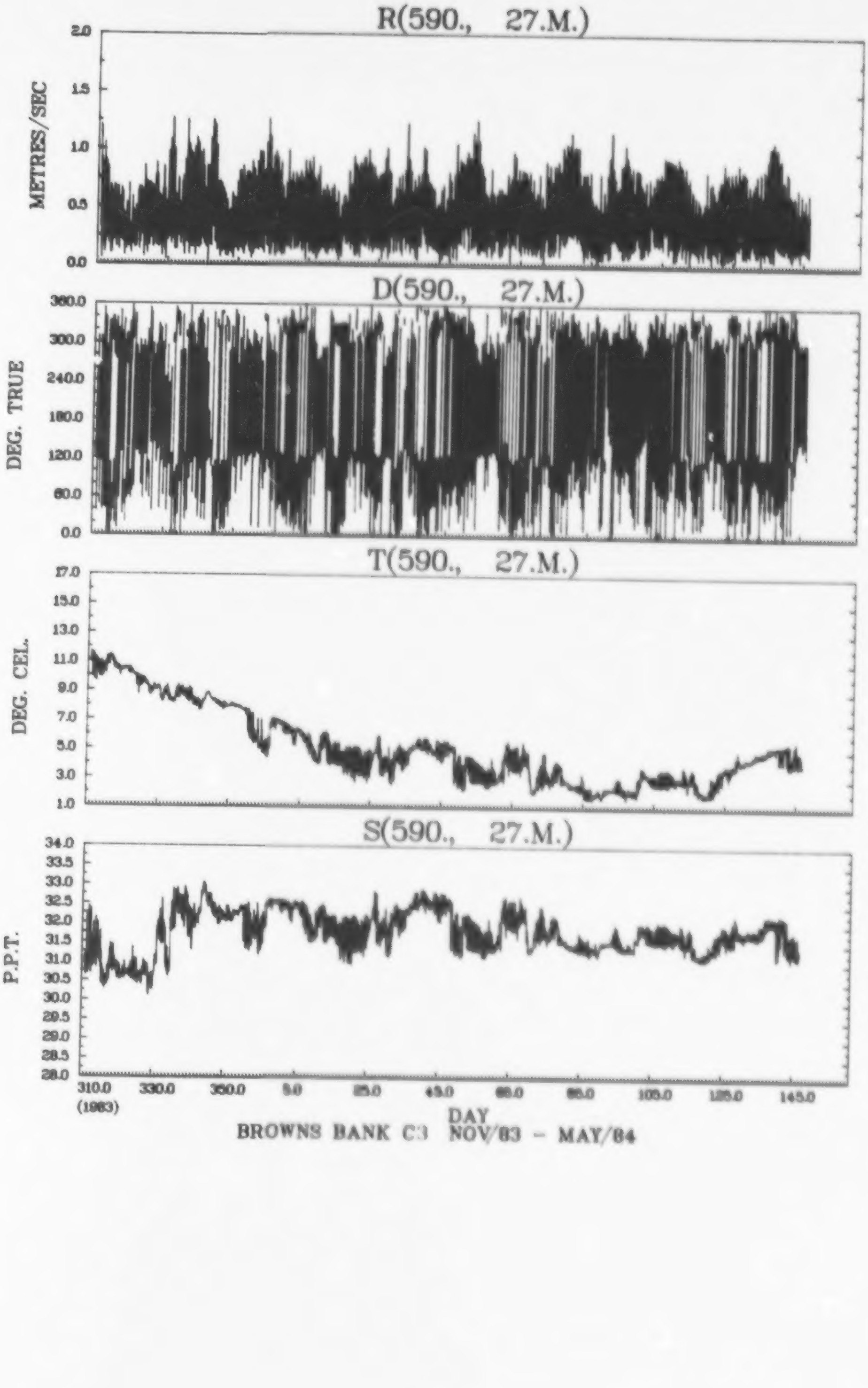
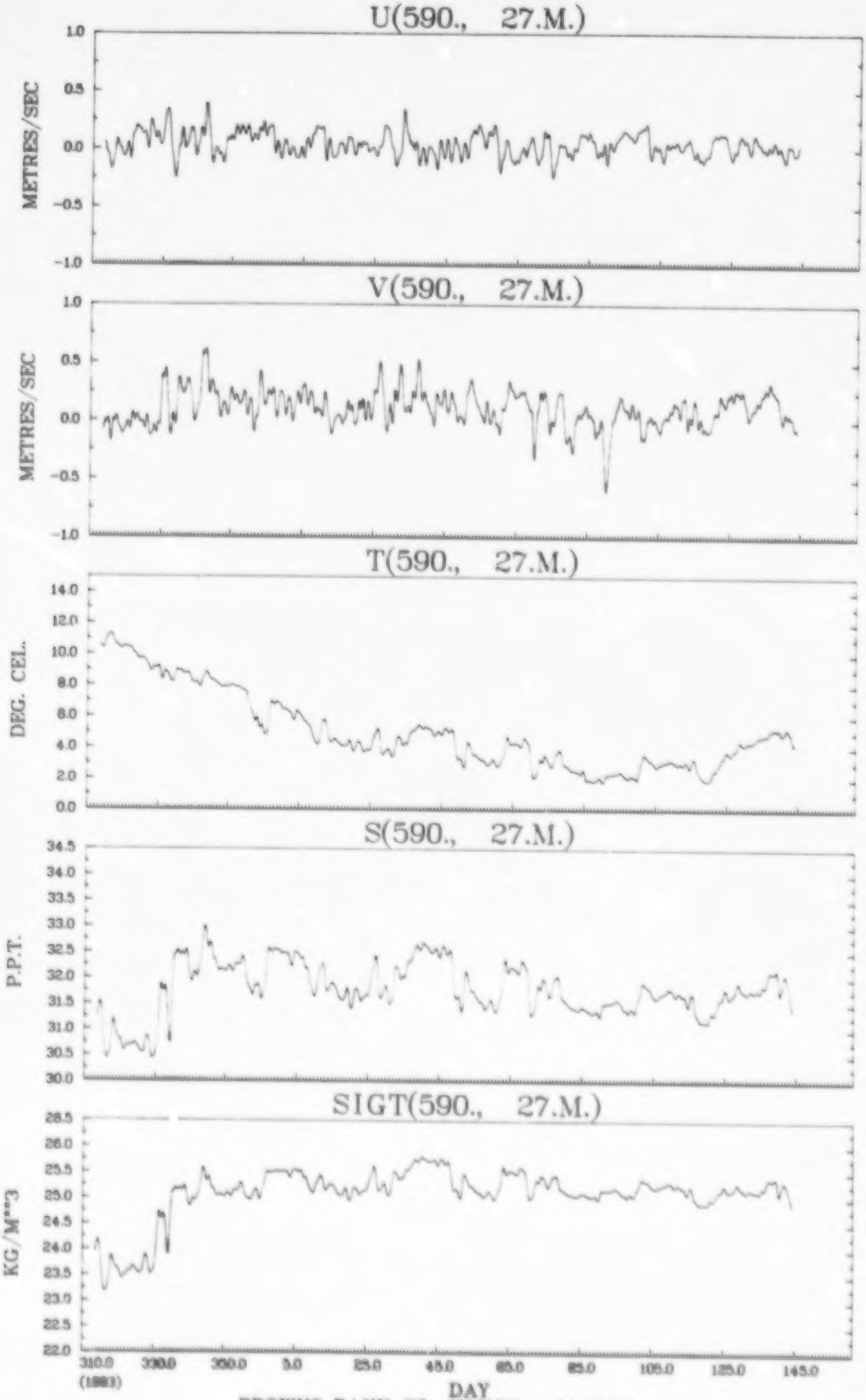
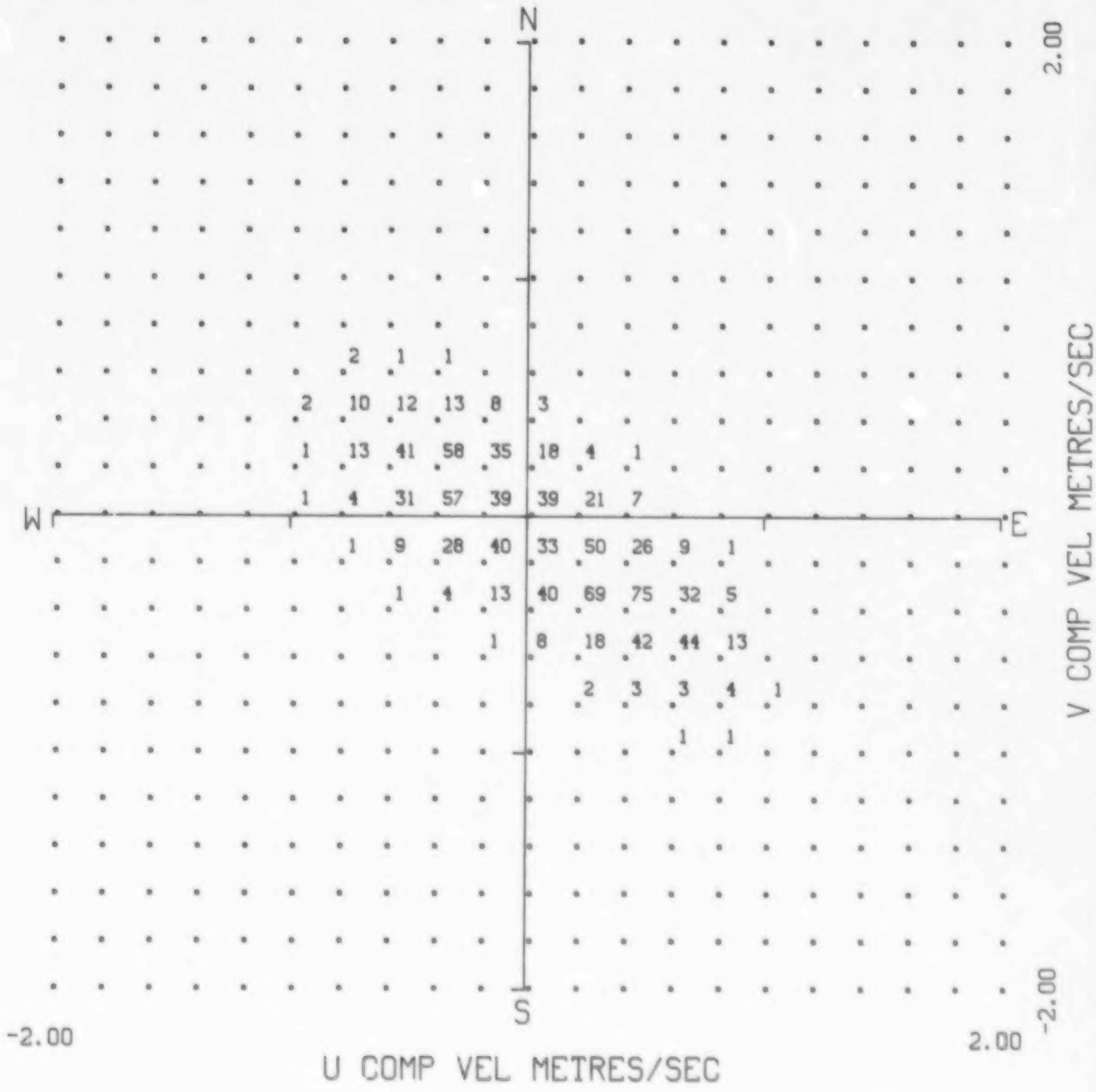


BROWNS BANK C3 NOV/83 - MAY/84



BROWNS BANK C3 NOV/83 -- MAY/84



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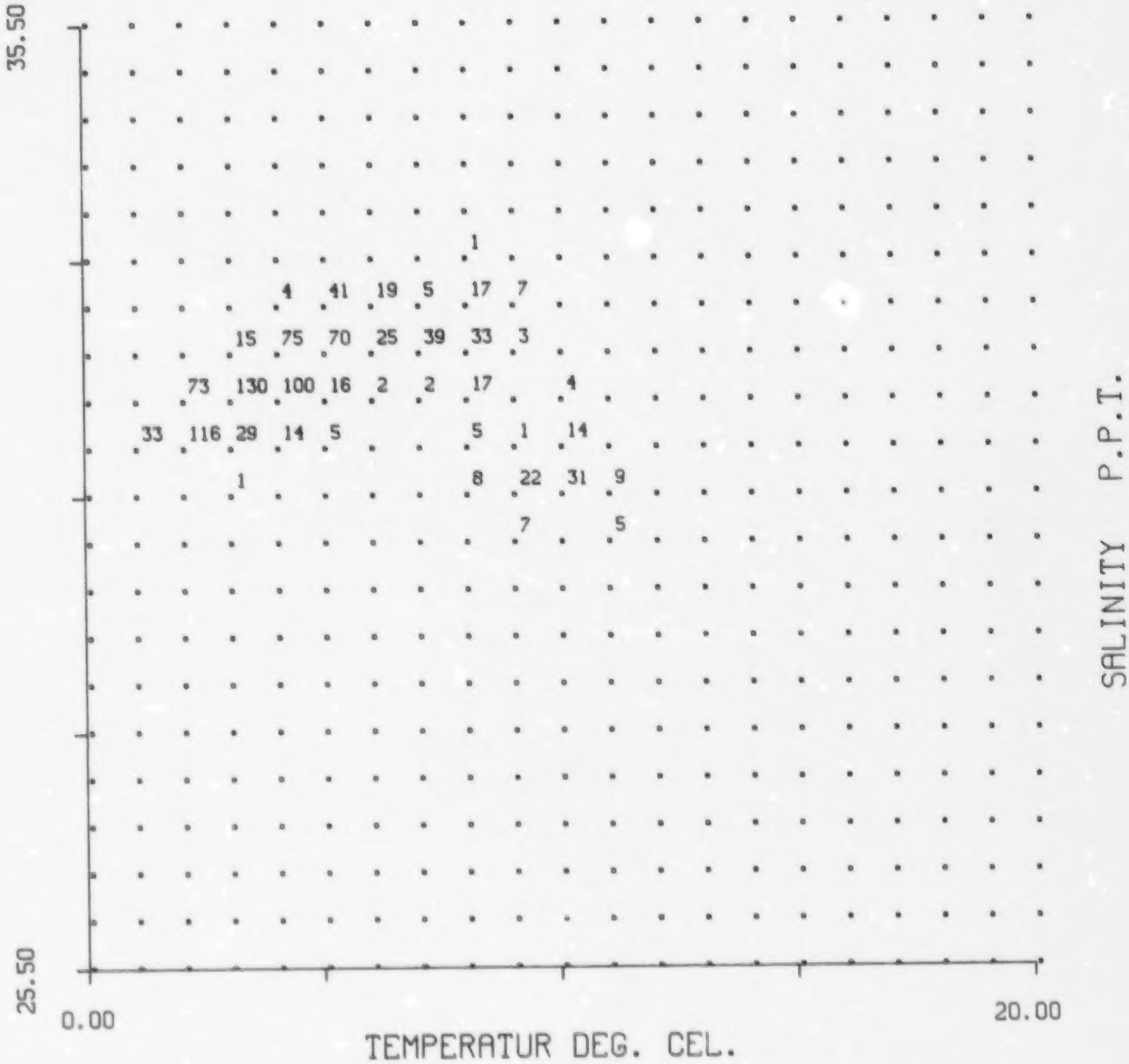

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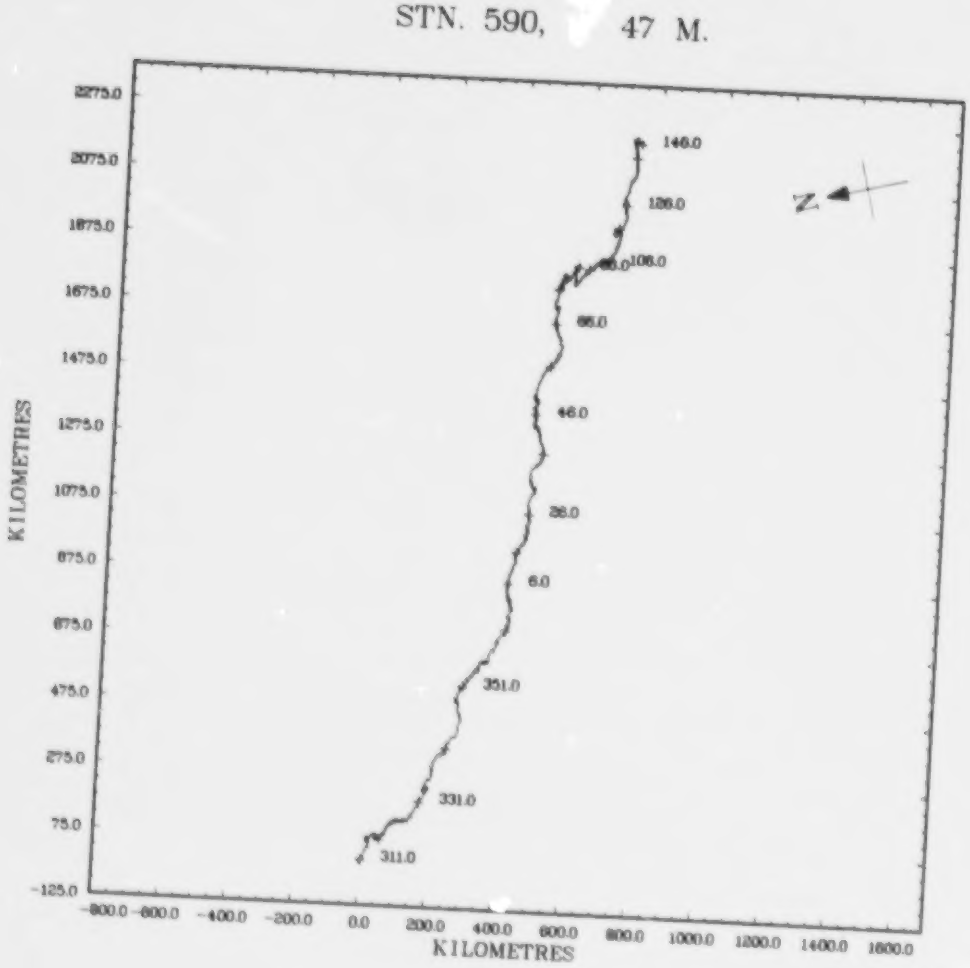
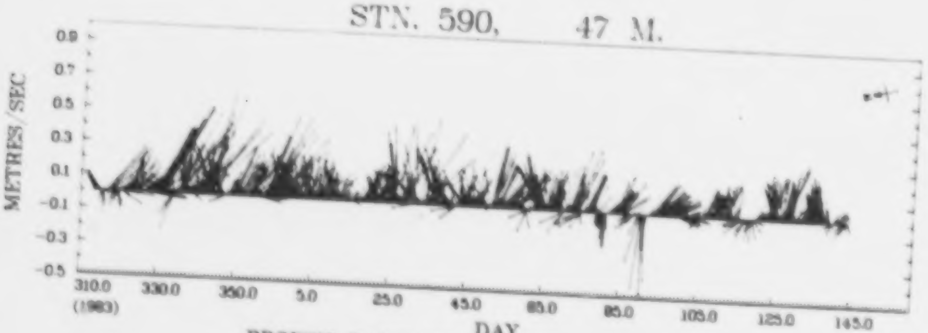
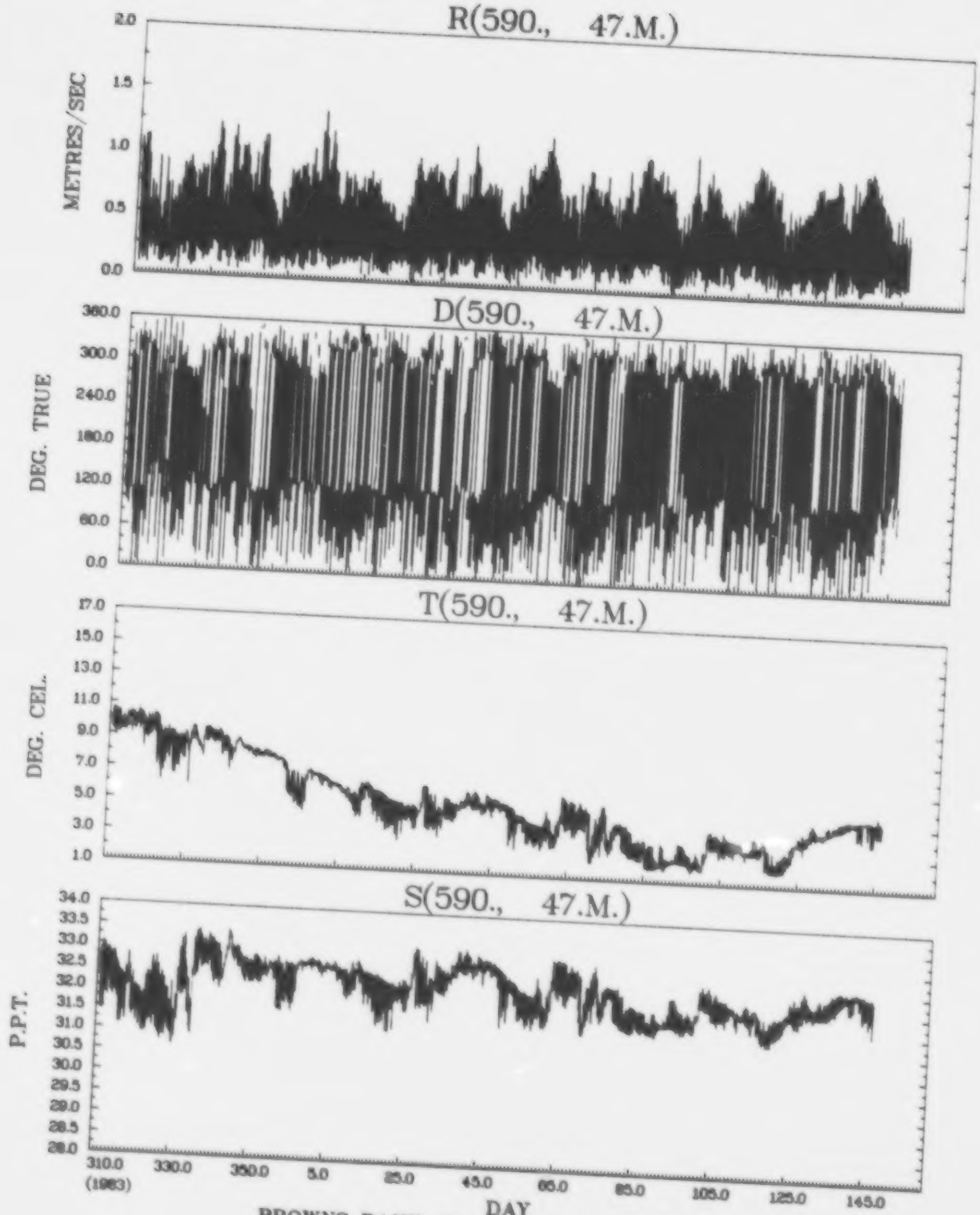




BROWNS BANK C3 NOV 83 - MAY 84



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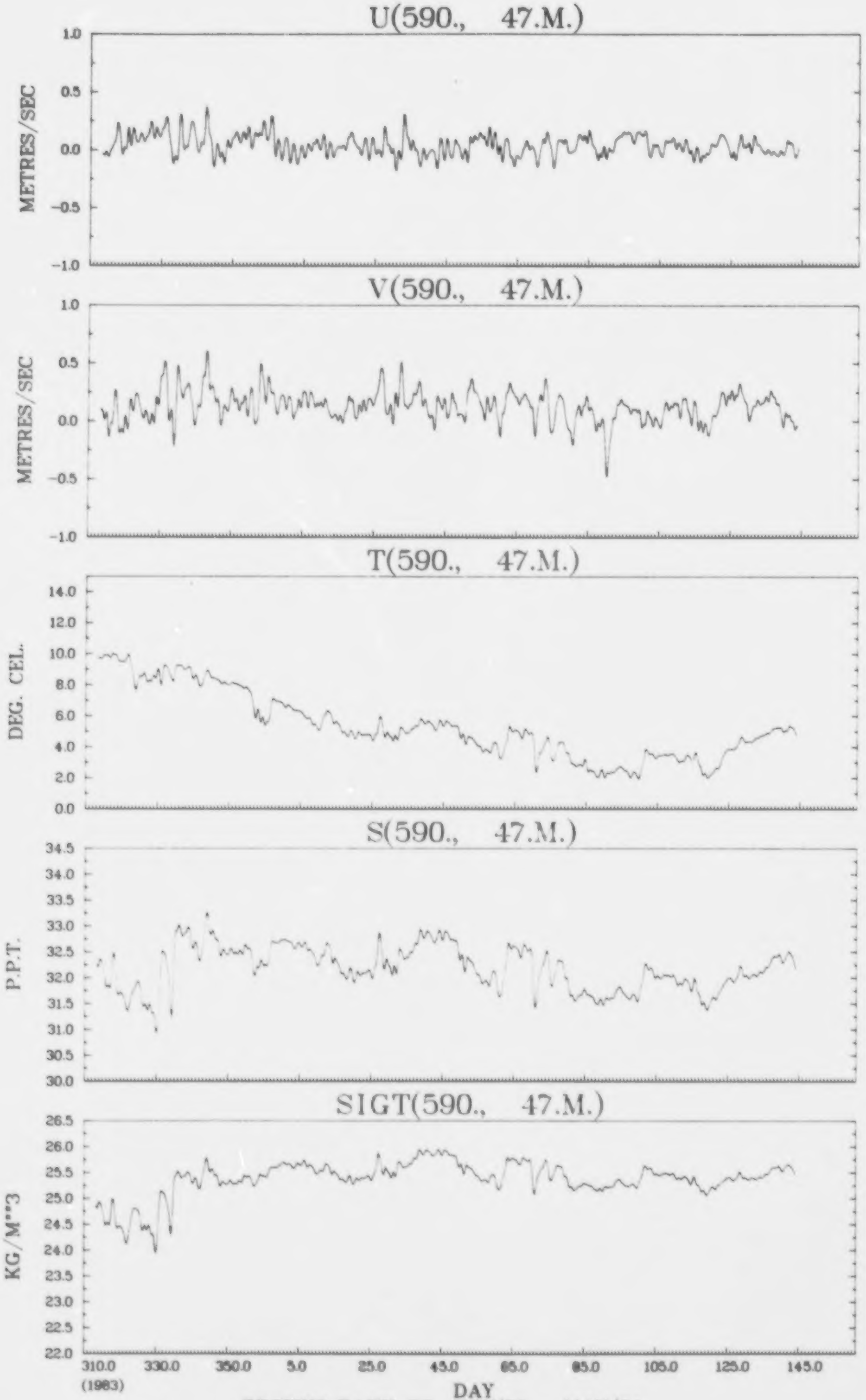

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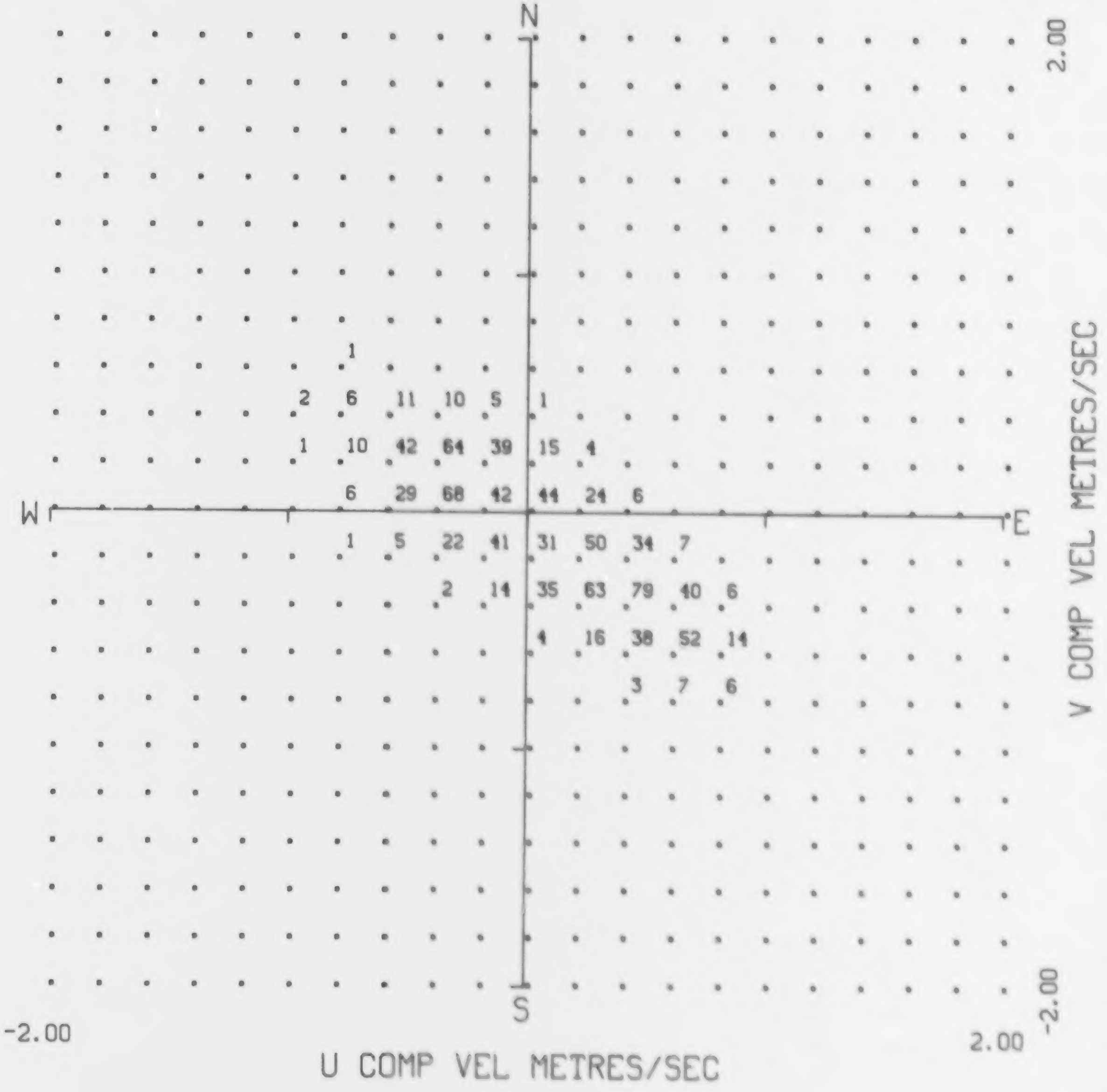

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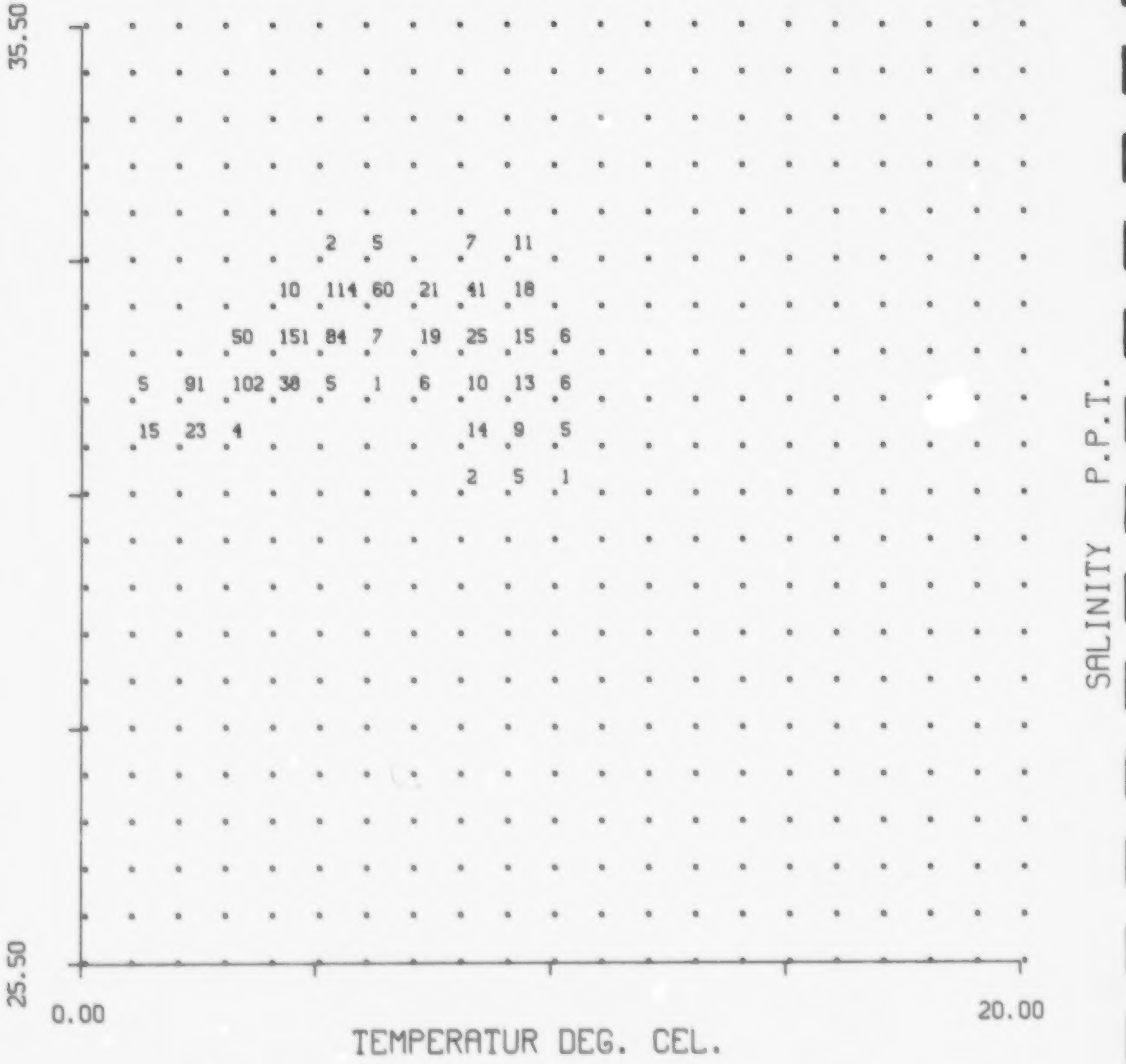

FREQUENCY DISTRIBUTION PLOT
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START TIME 6/11/1983 19: 0: .0 GMT
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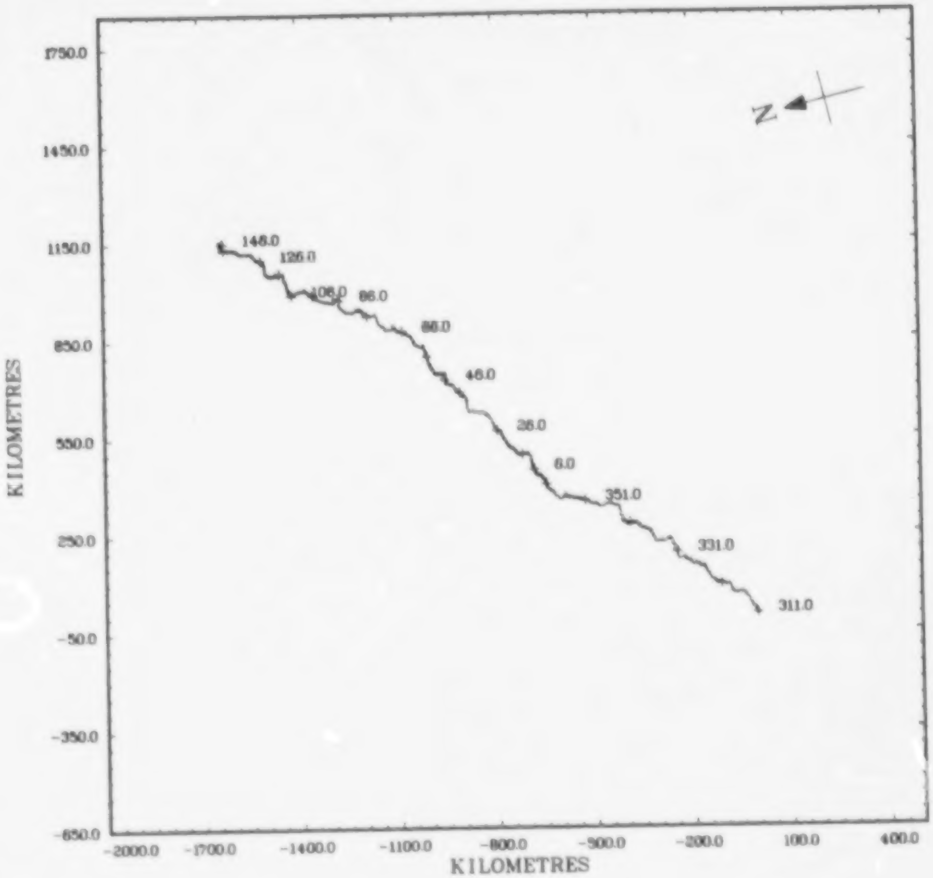
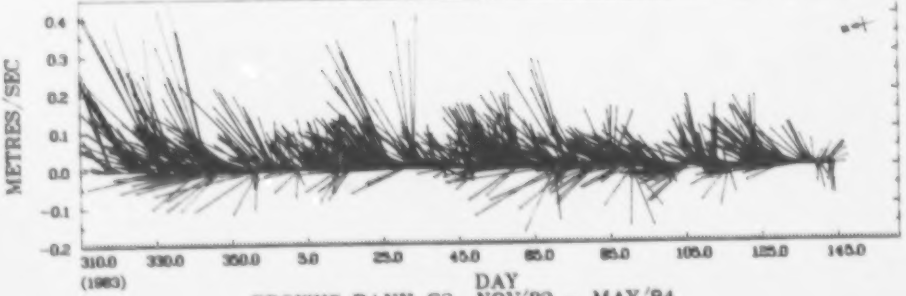
STN. 590, 97 M.



STN. 590, 97 M.



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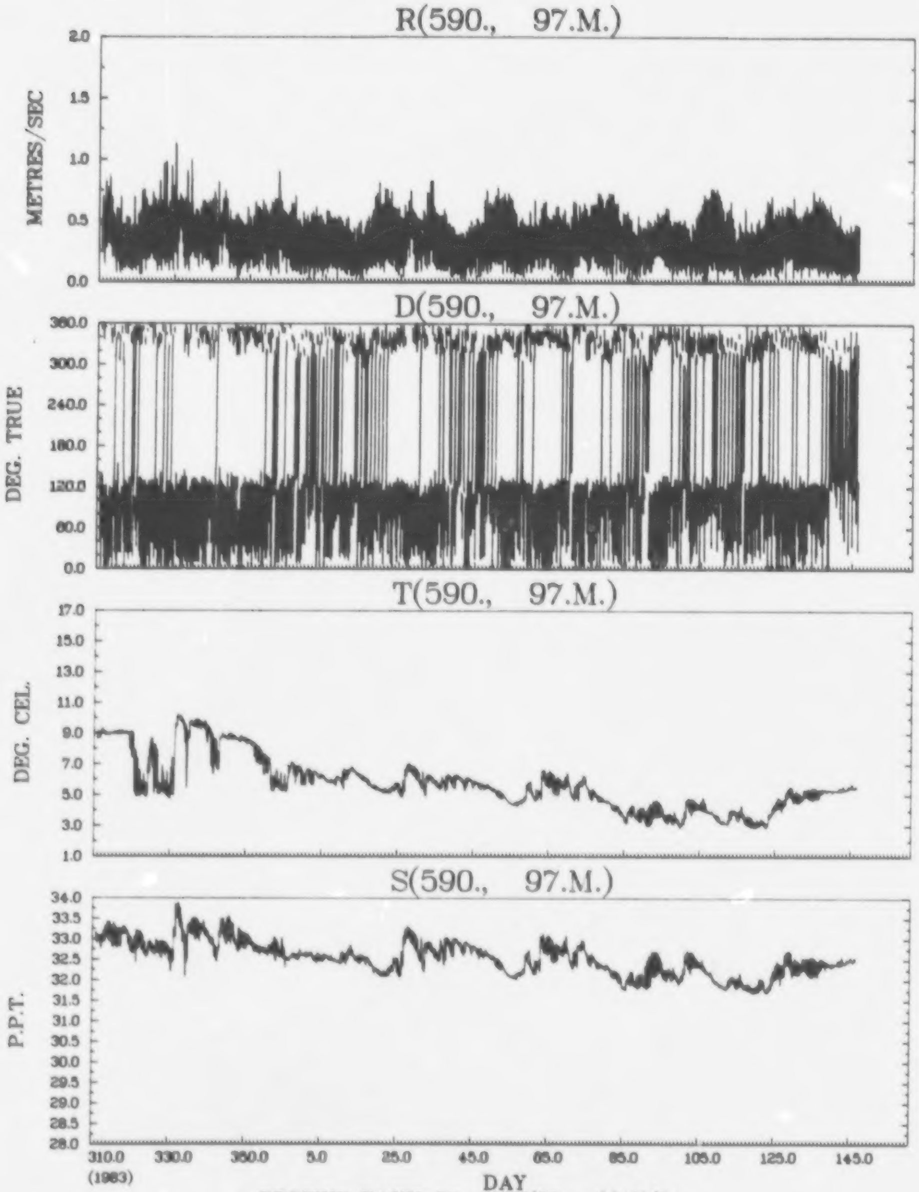


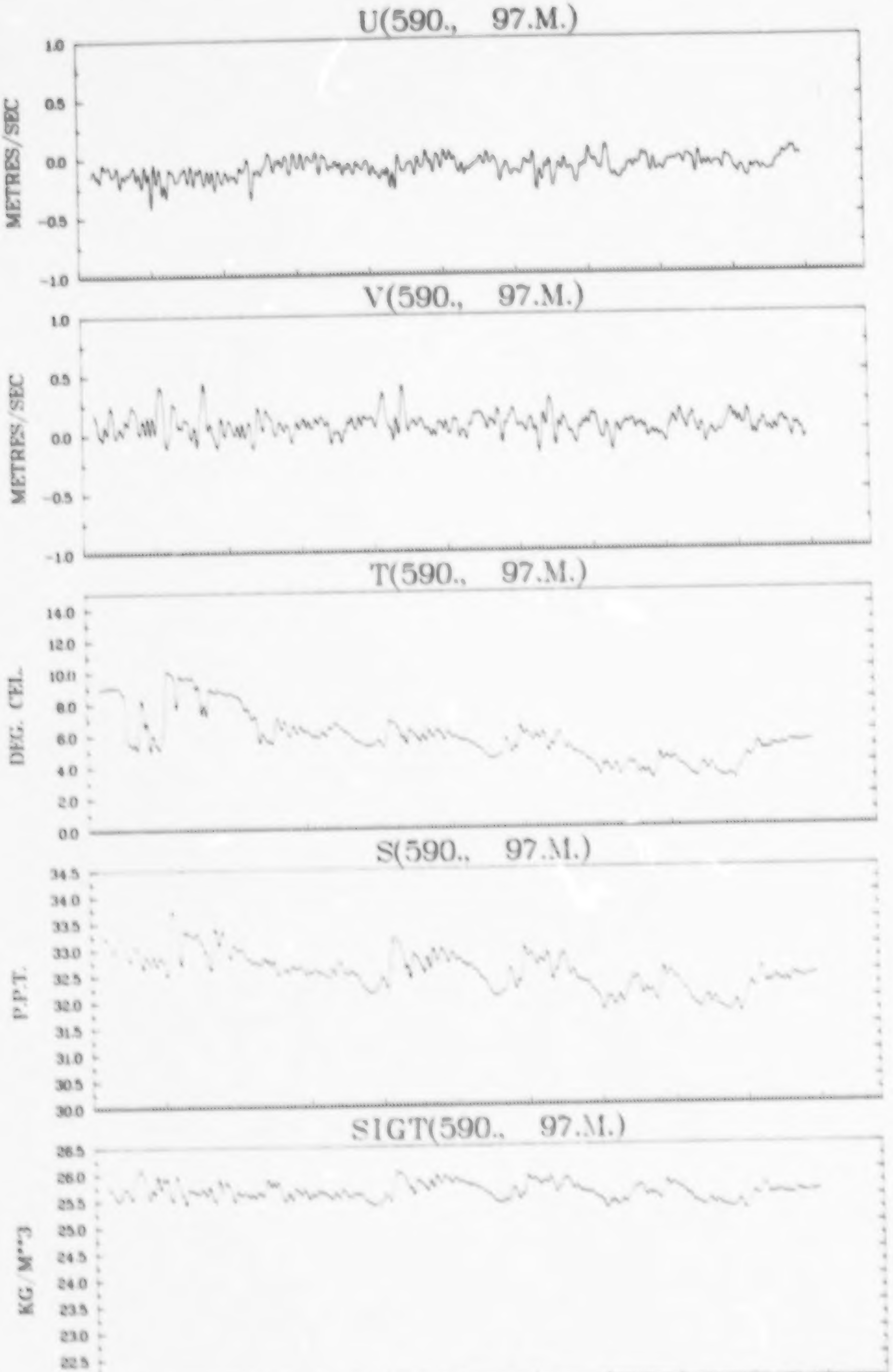
R(590., 97.M.)

D(590., 97.M.)

T(590., 97.M.)

S(590., 97.M.)

BROWNS BANK C3 NOV/83 - MAY/84



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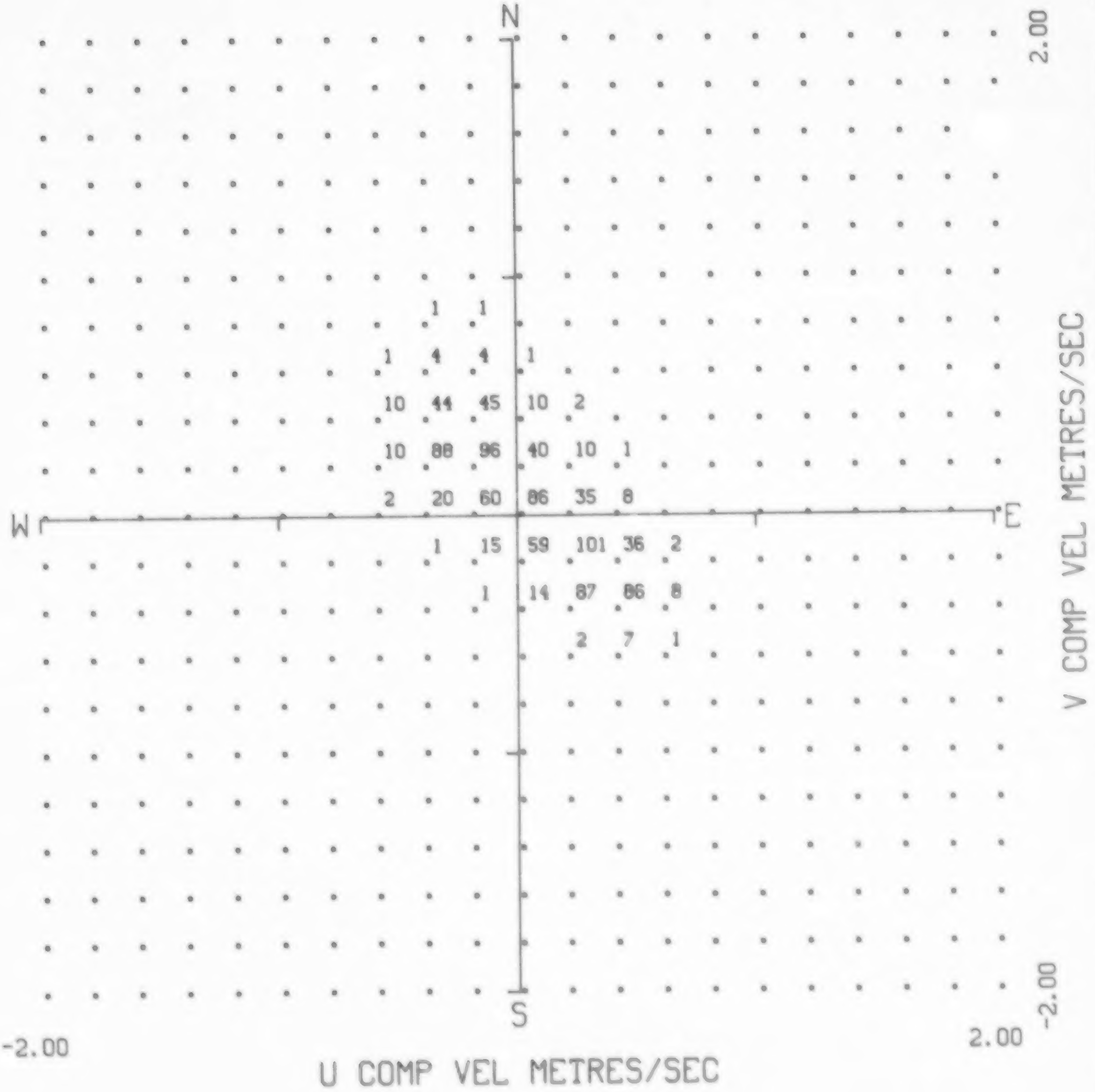

U COMP VEL METRES/SEC

FREQUENCY DISTRIBUTION PLOT
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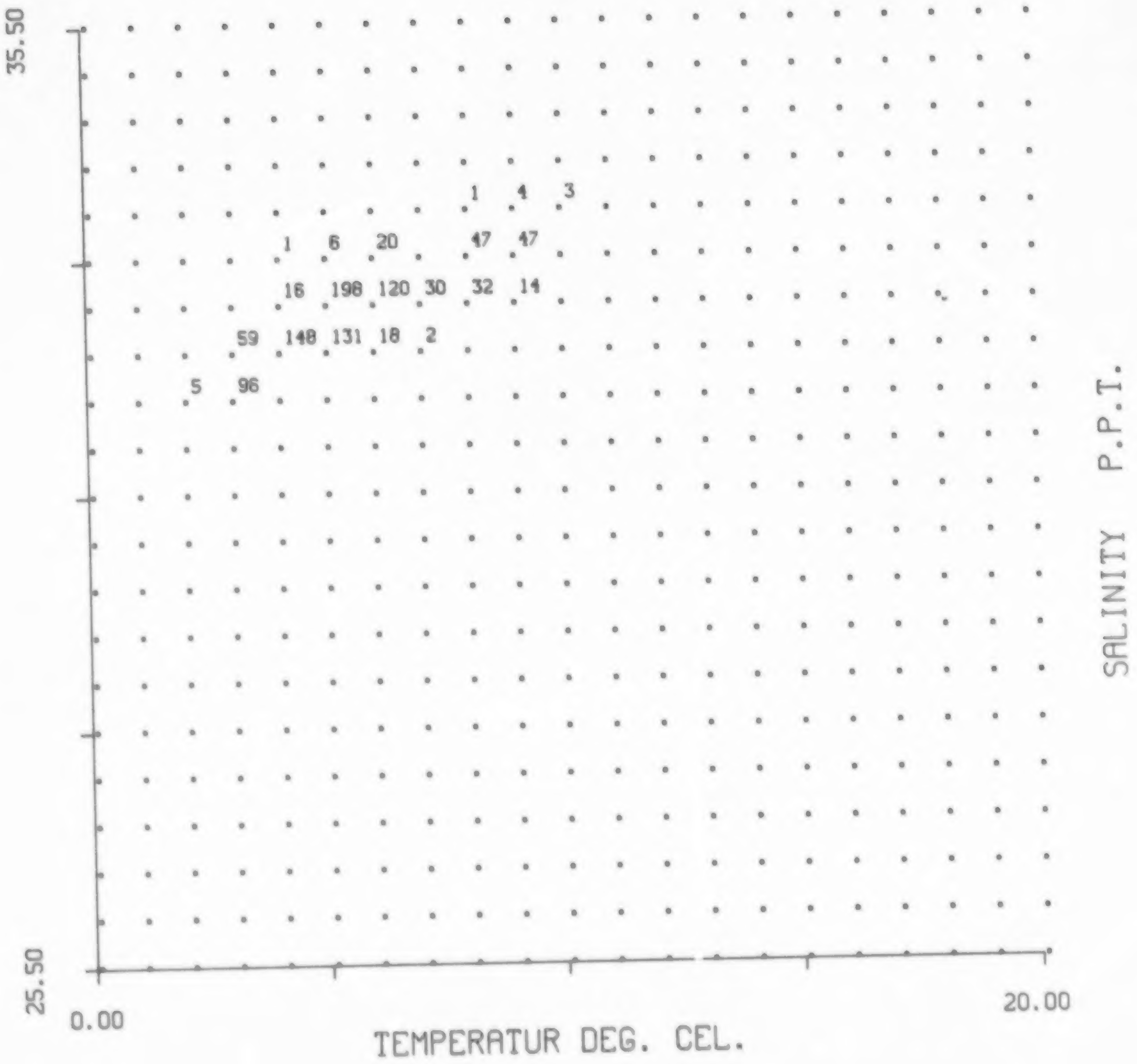

FREQUENCY DISTRIBUTION PLOT
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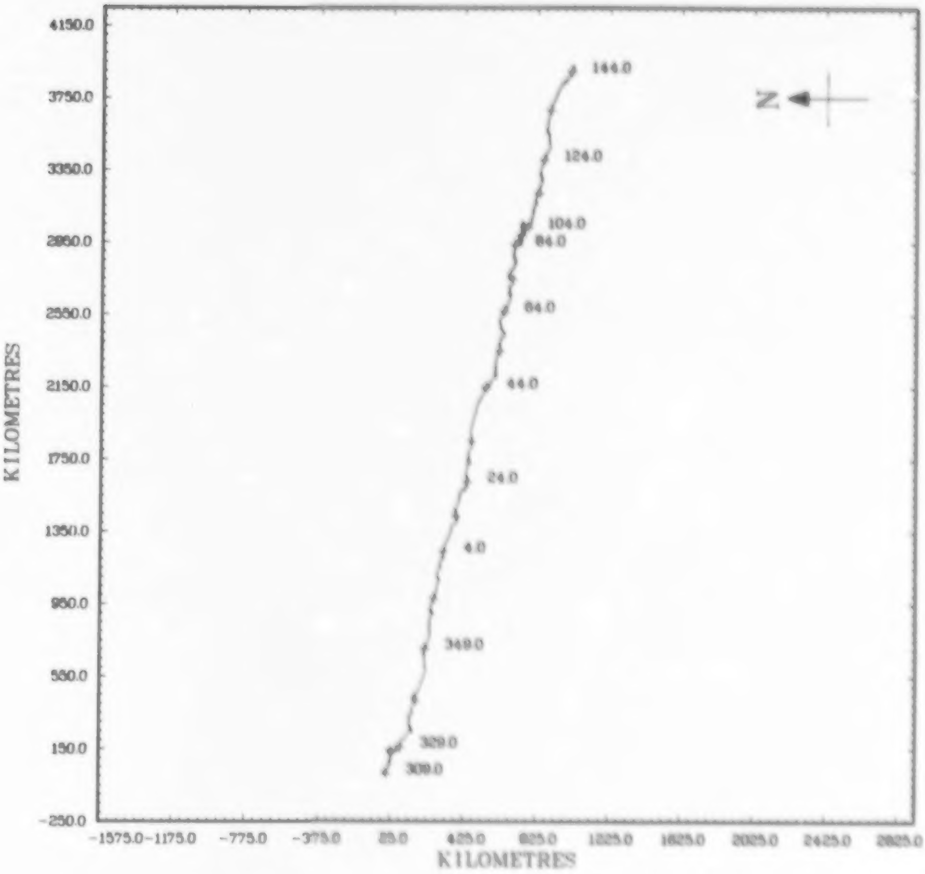
STN. 591, 22 M.



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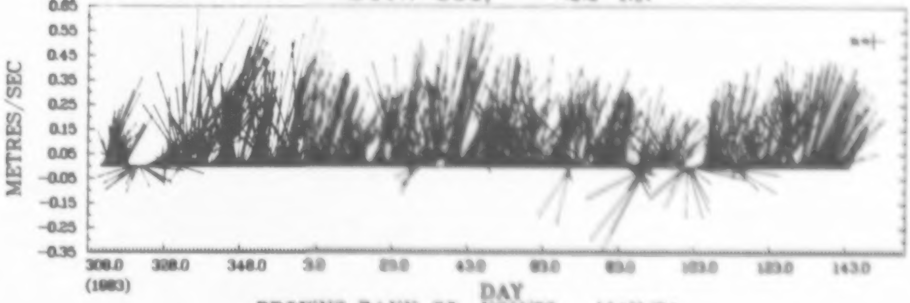
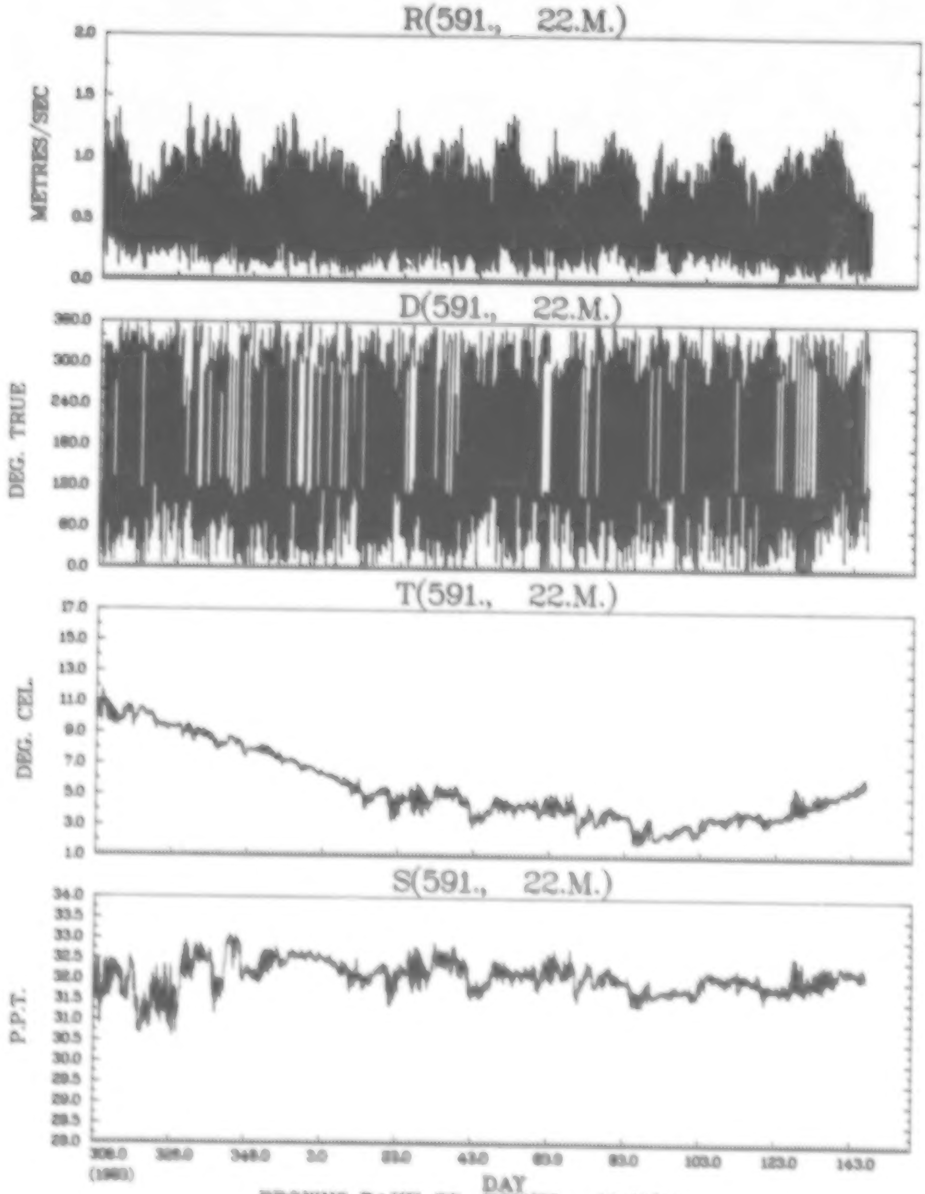


BROWNS BANK C7 NOV/83 - MAY/84



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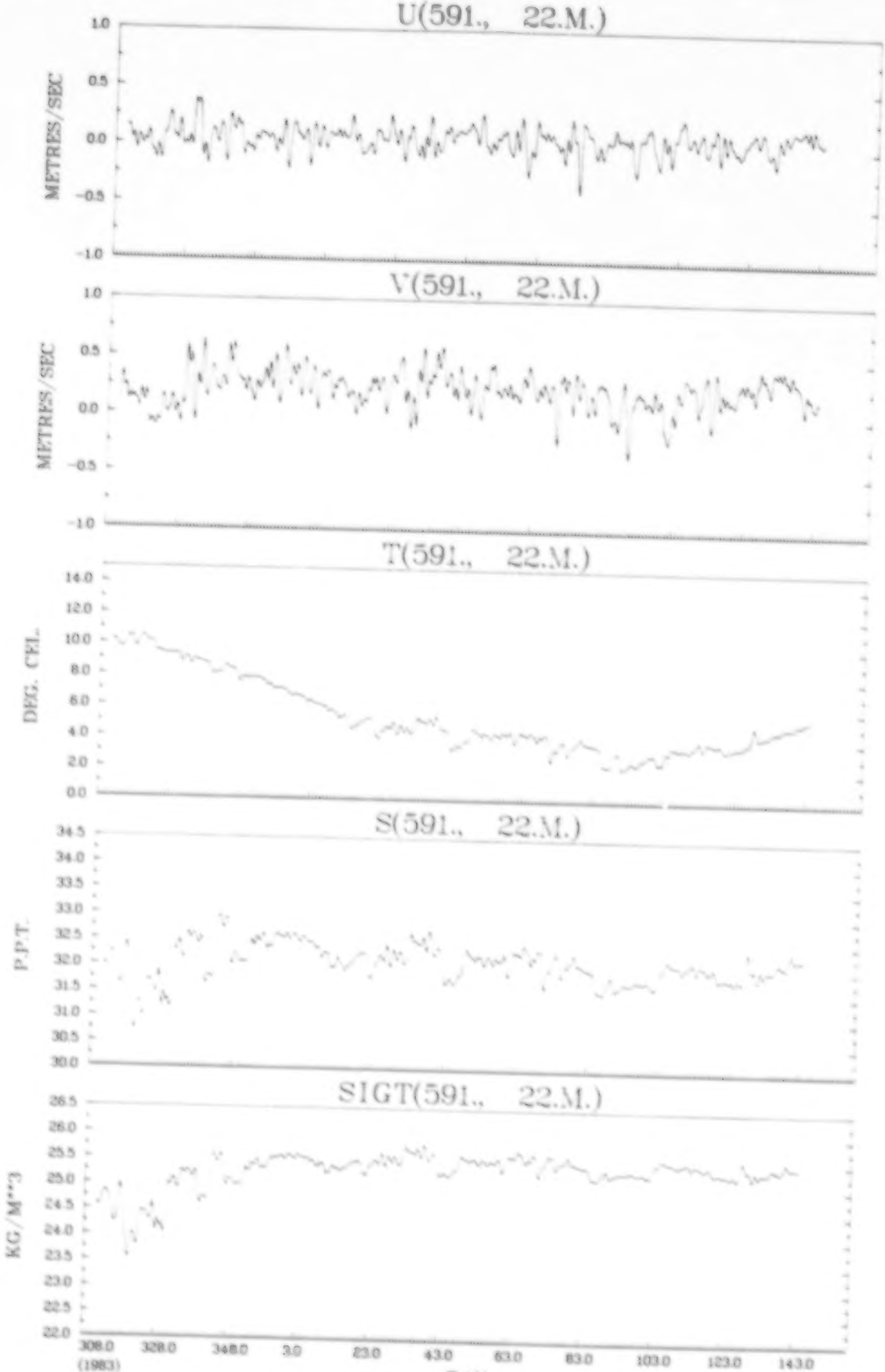

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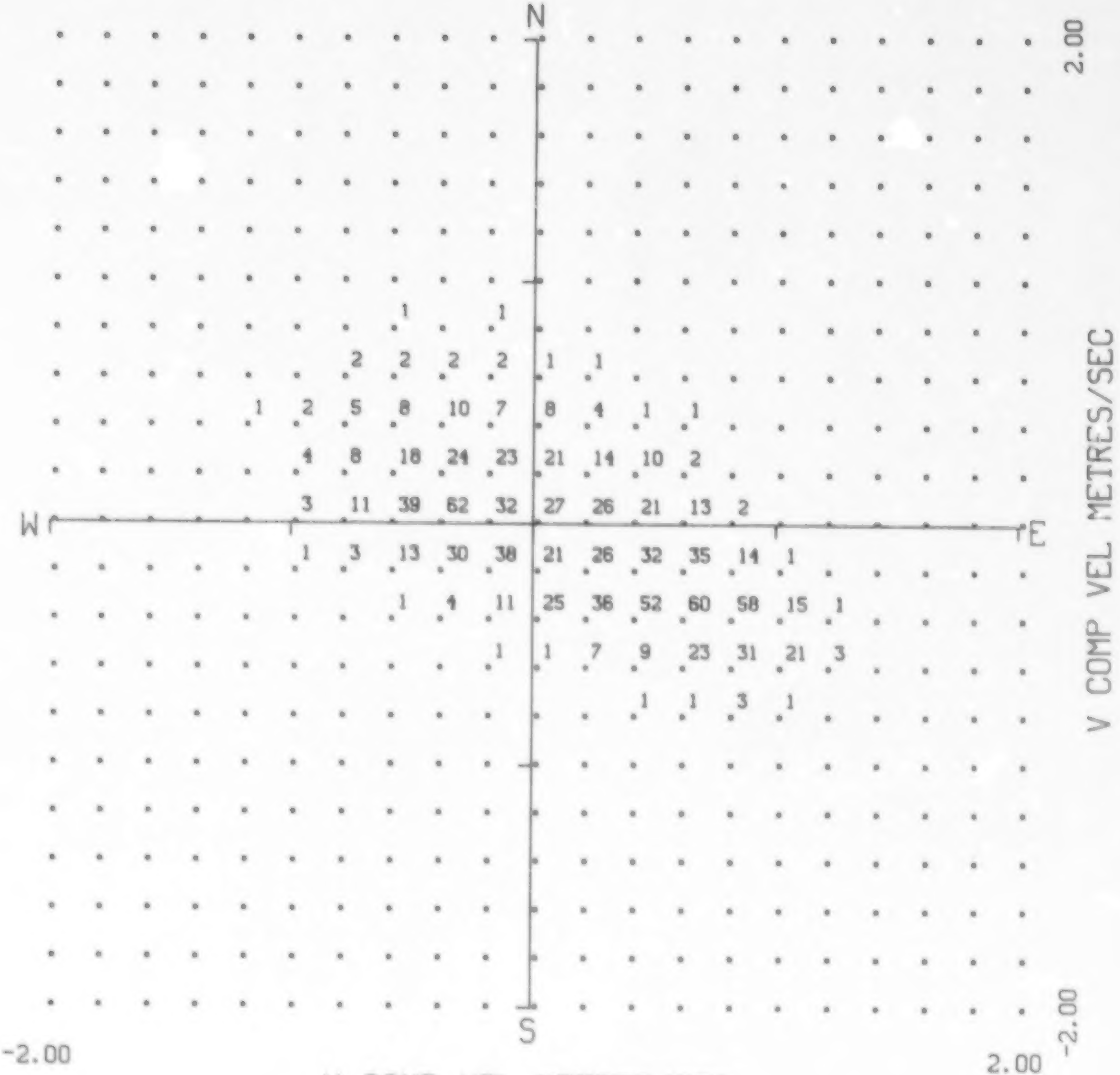

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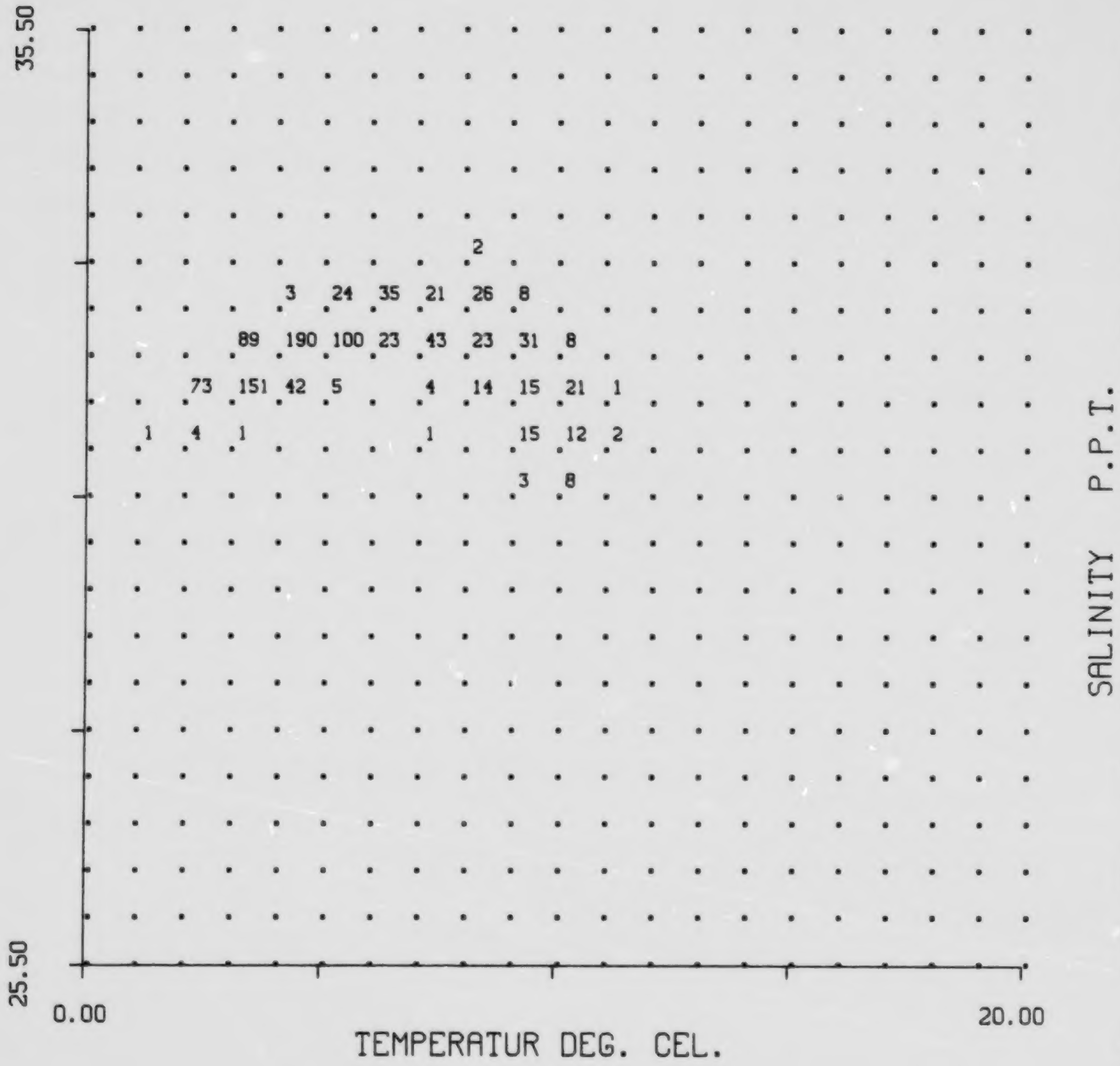

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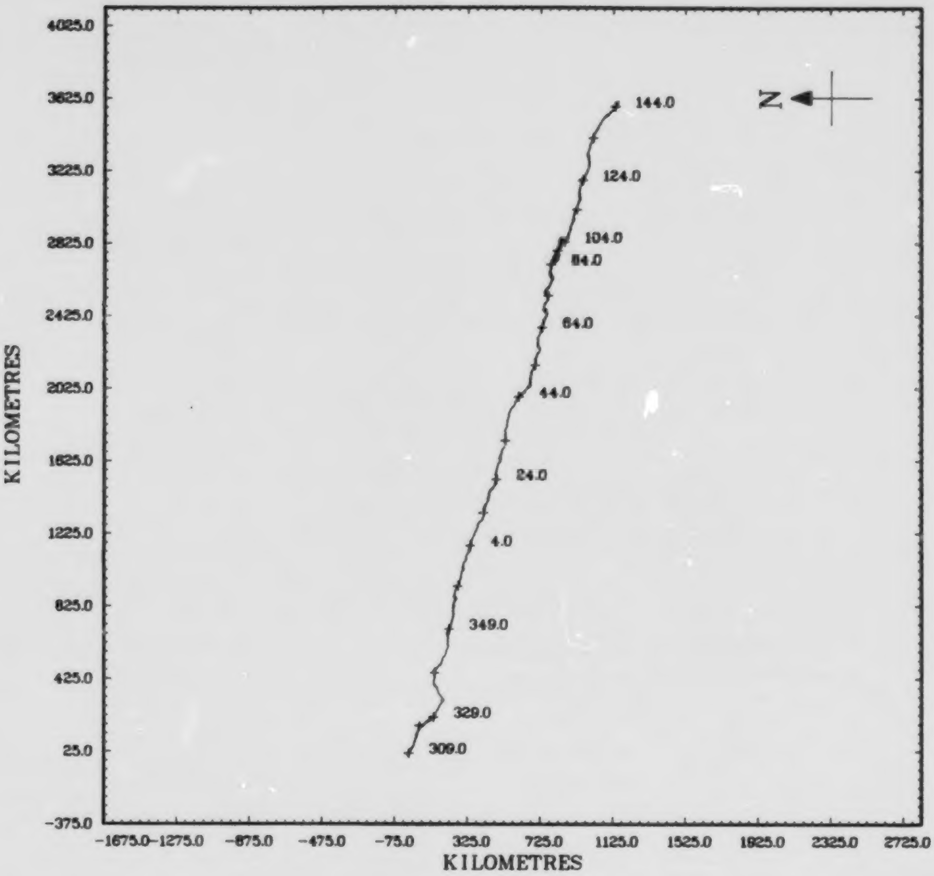
STN. 591, 35 M.



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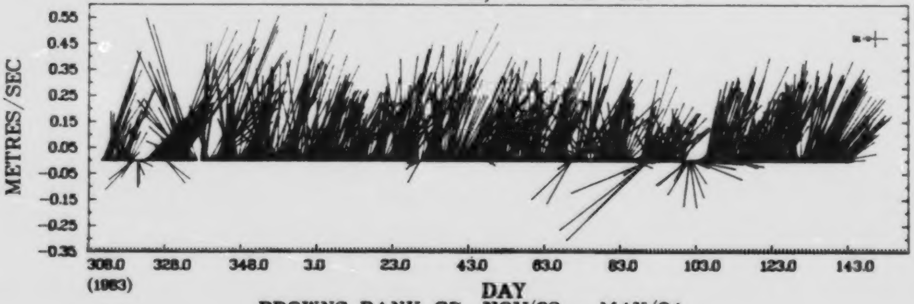

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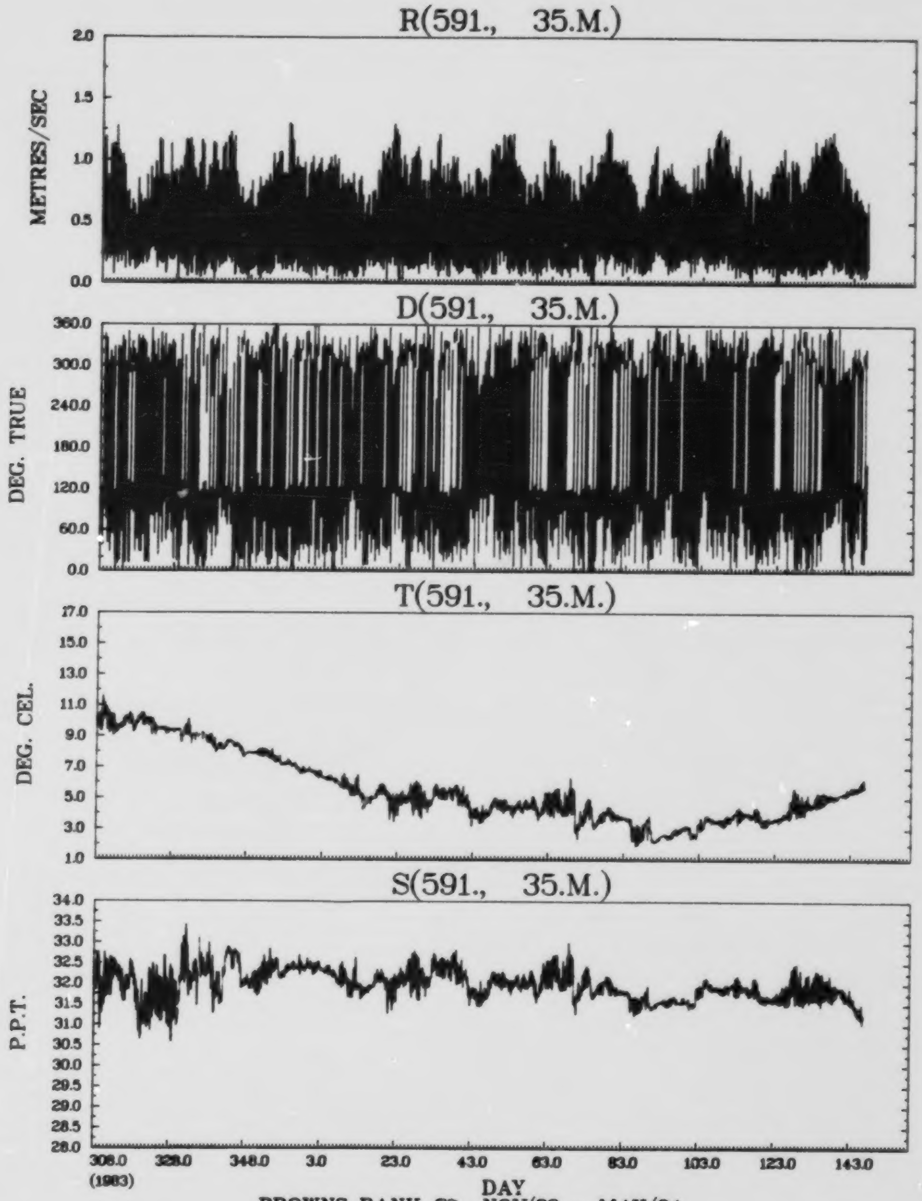

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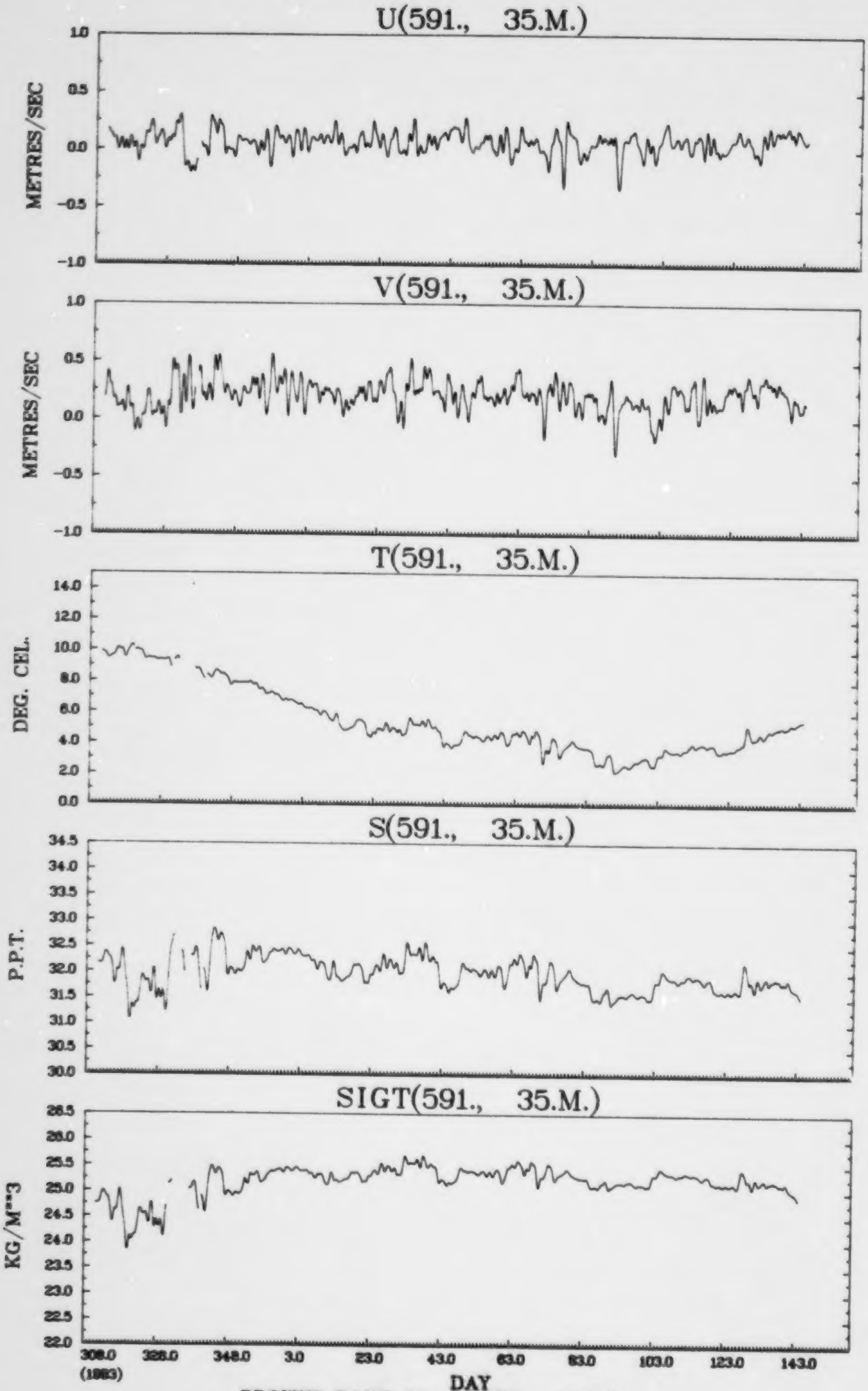

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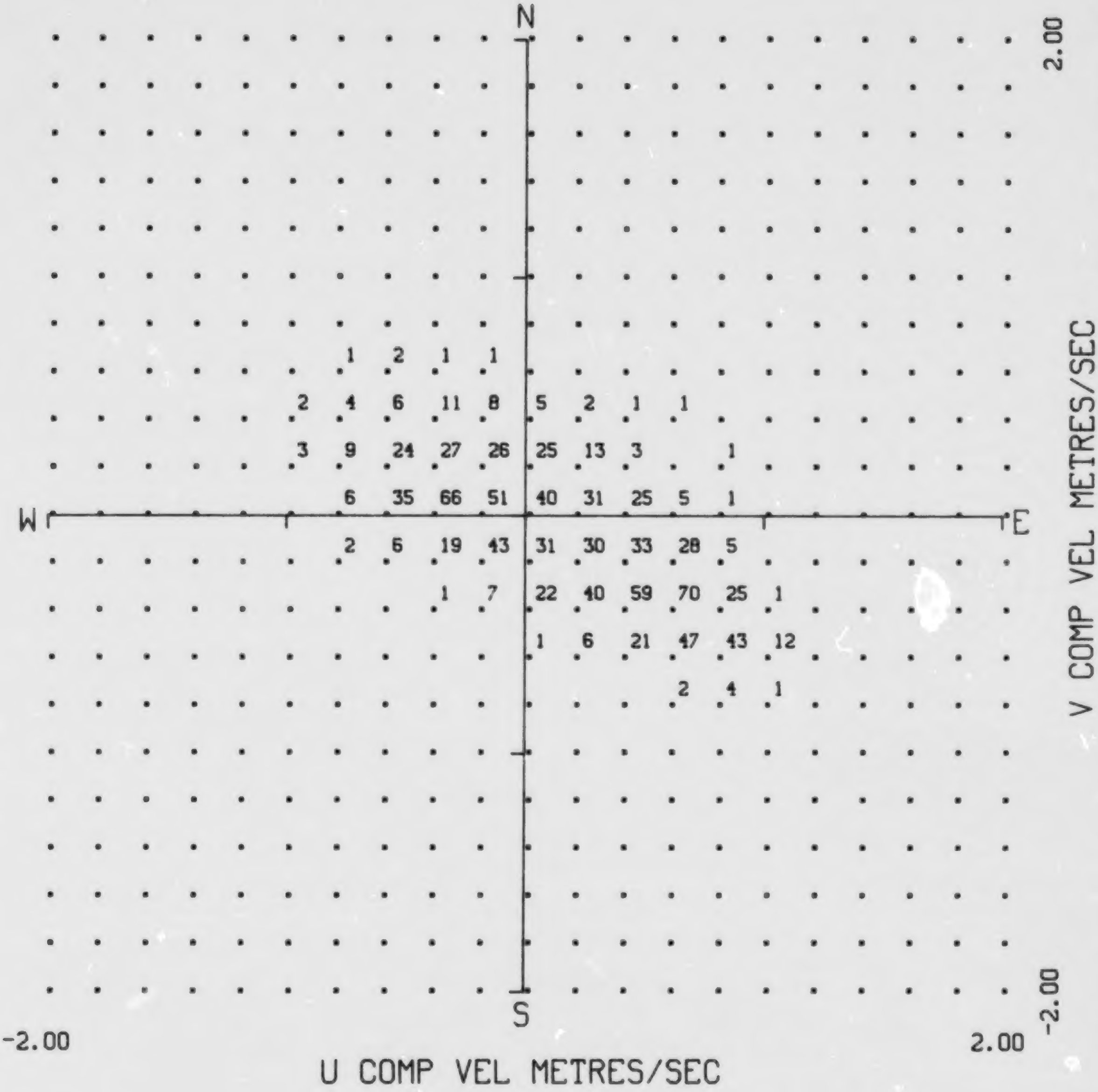

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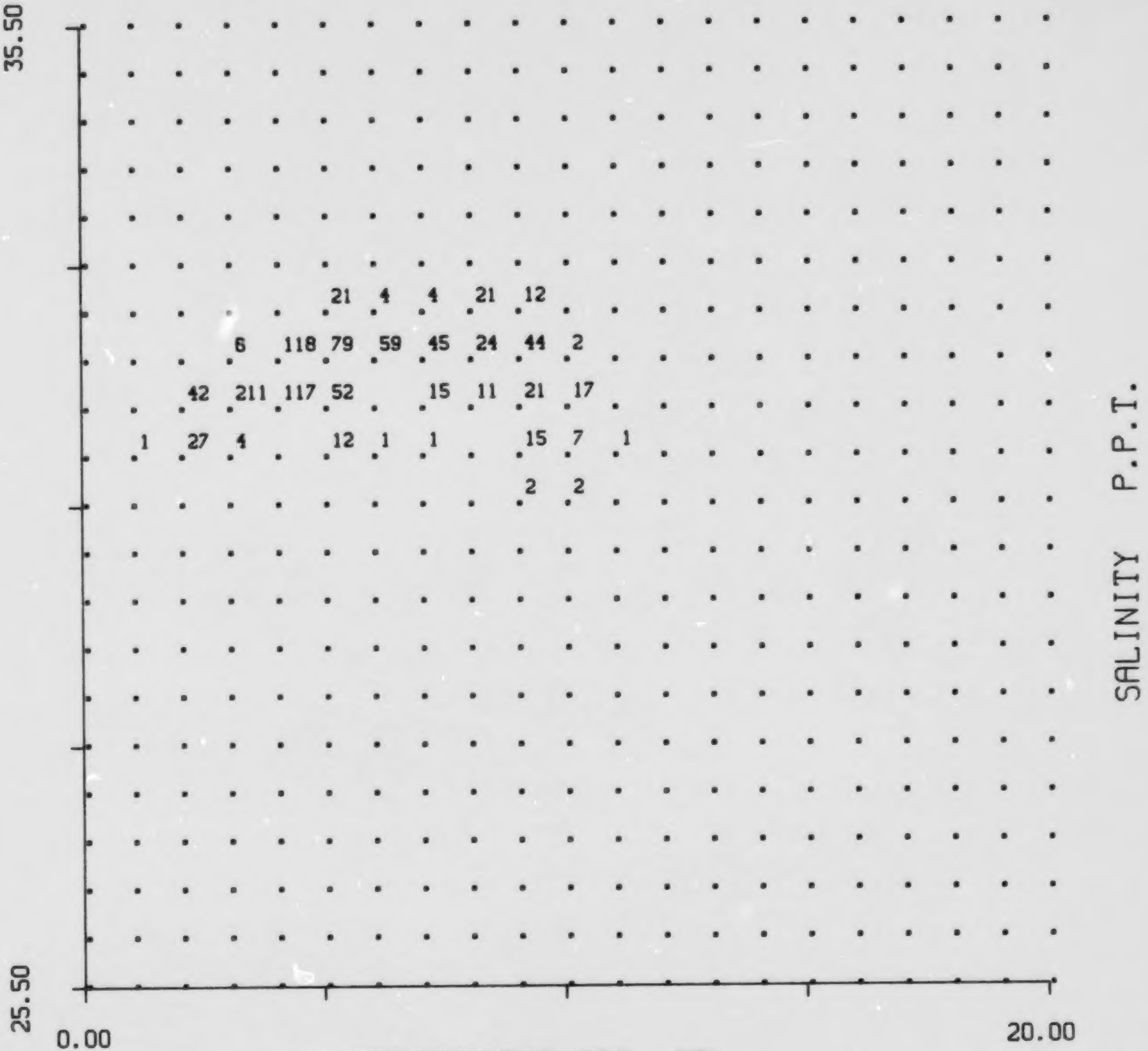

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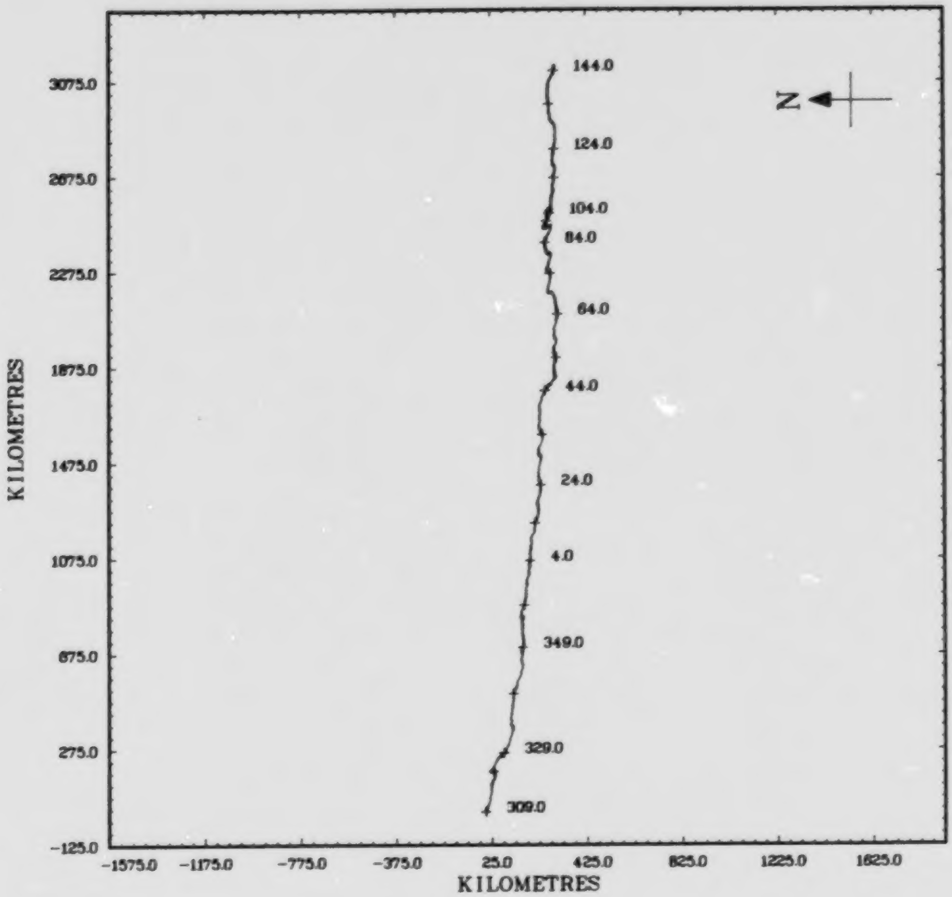

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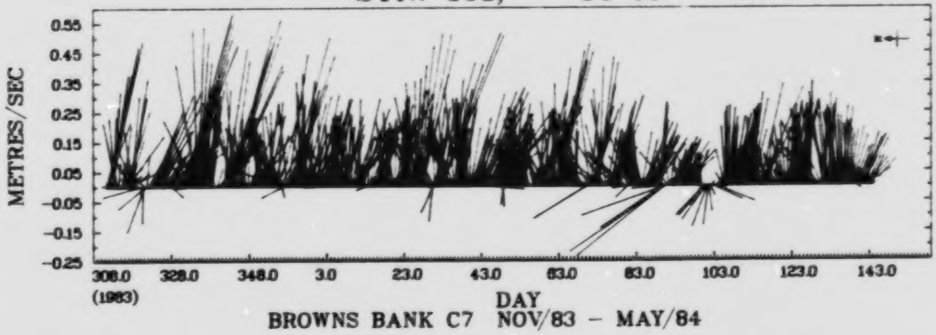

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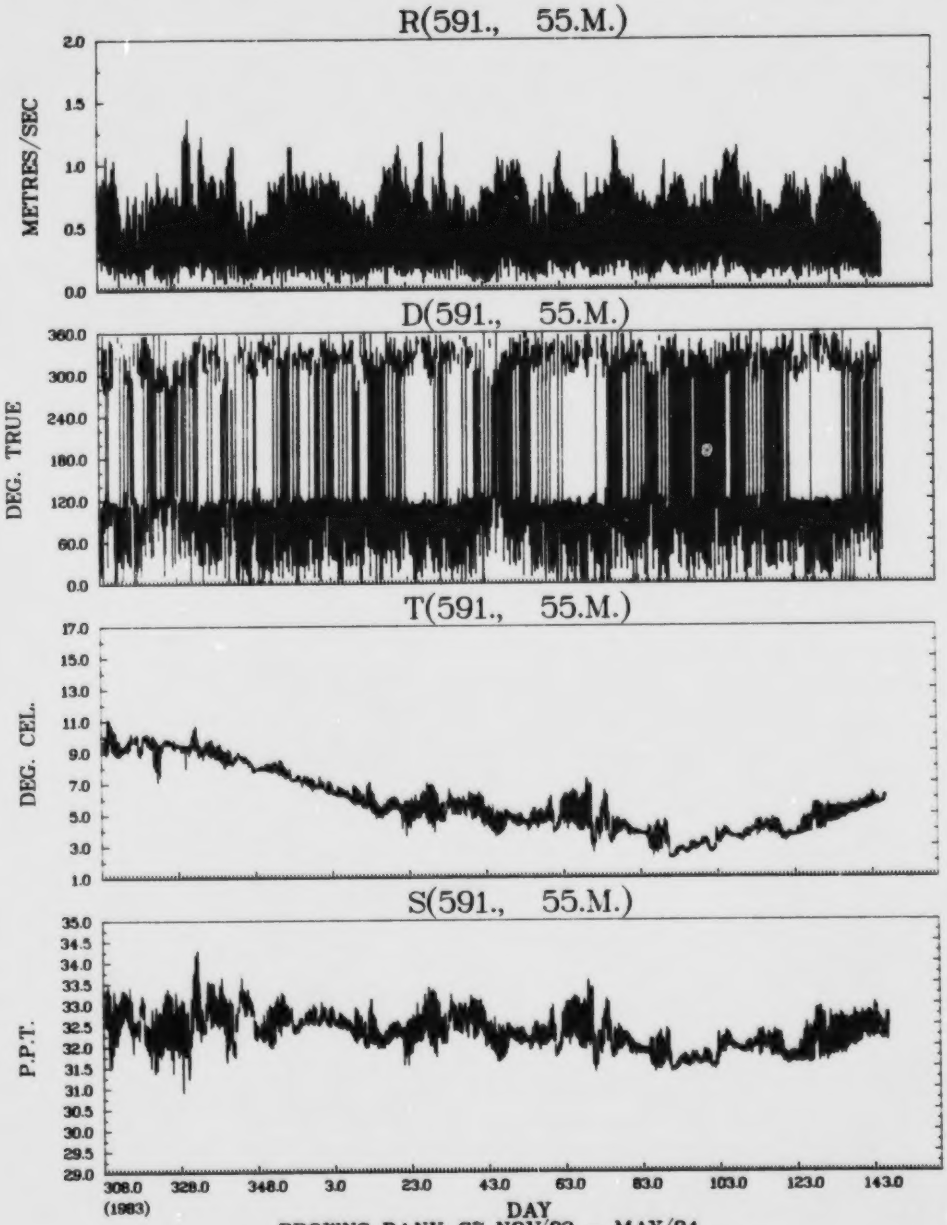

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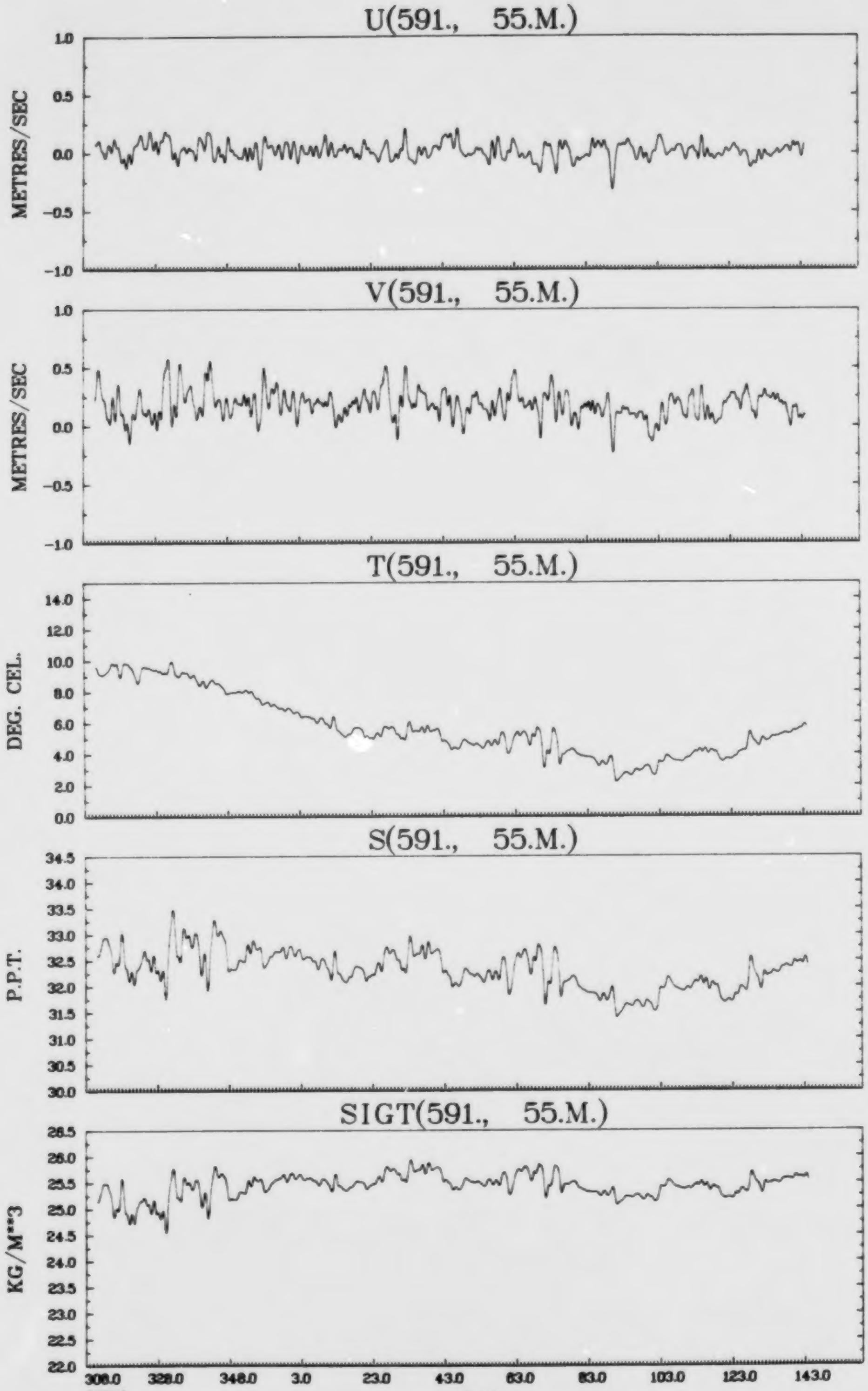

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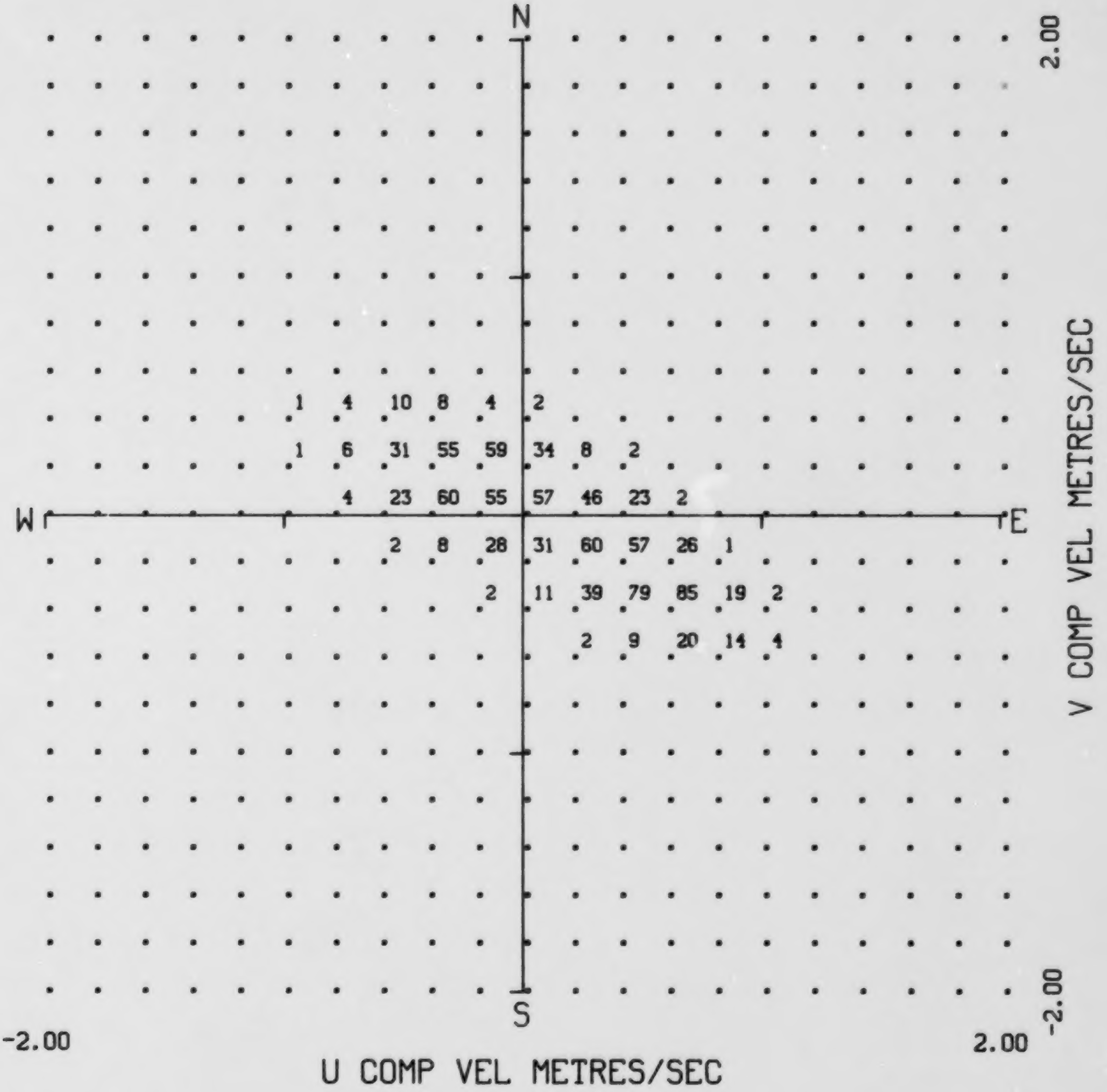

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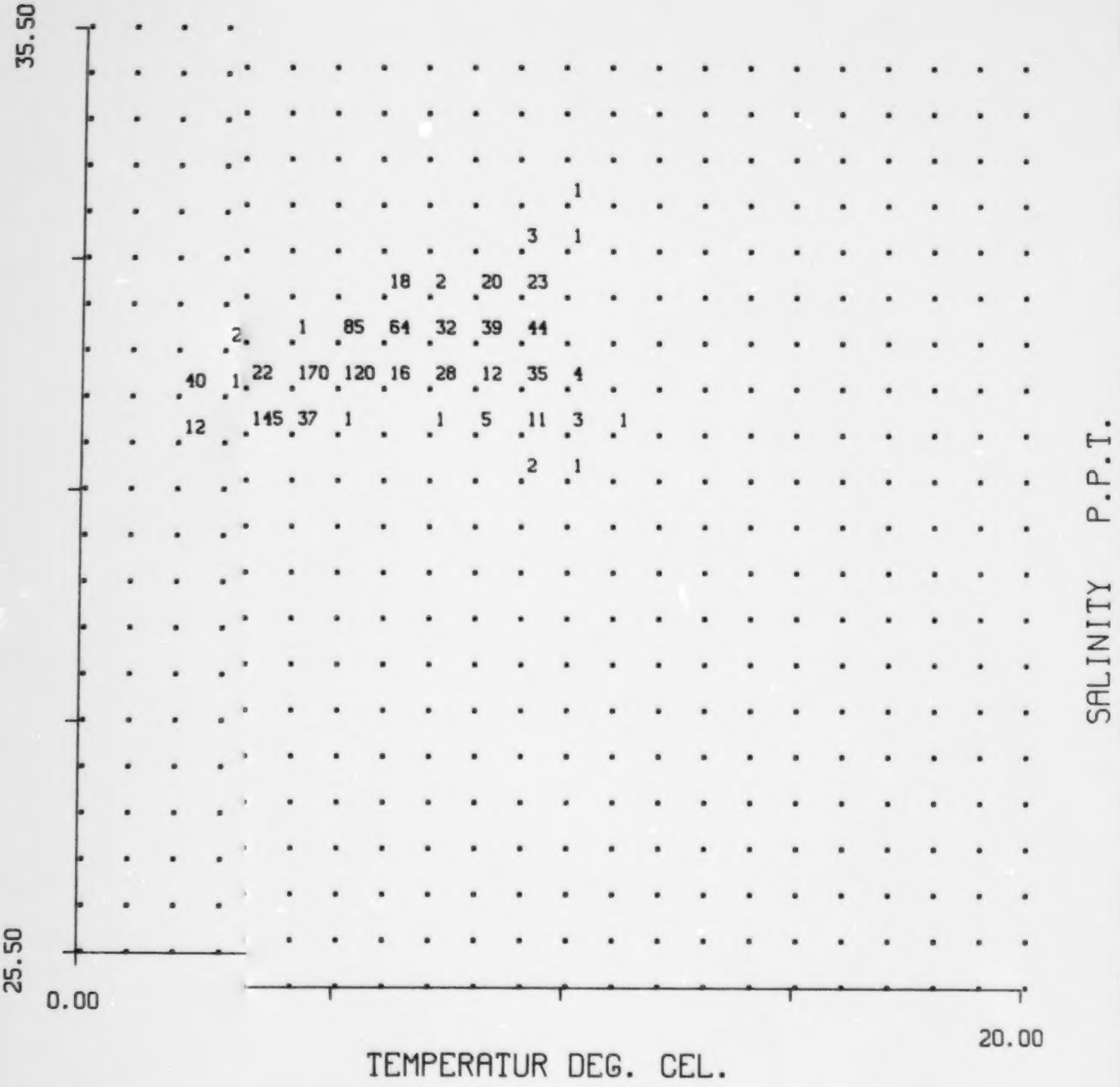

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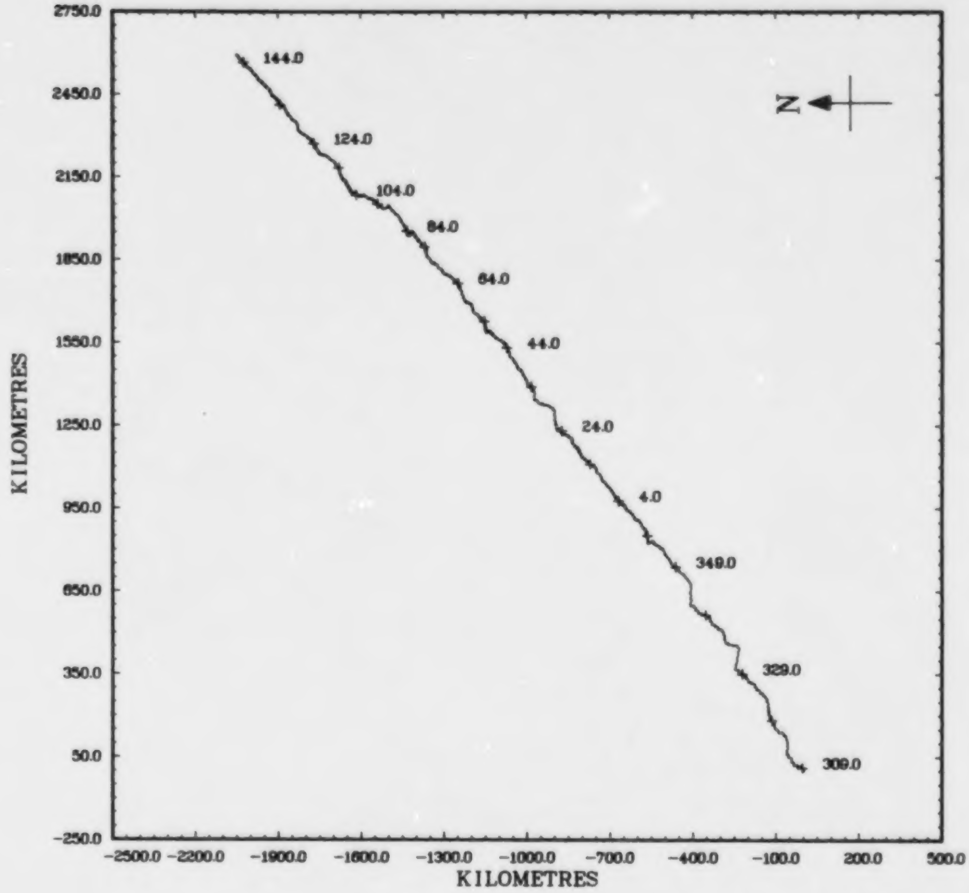

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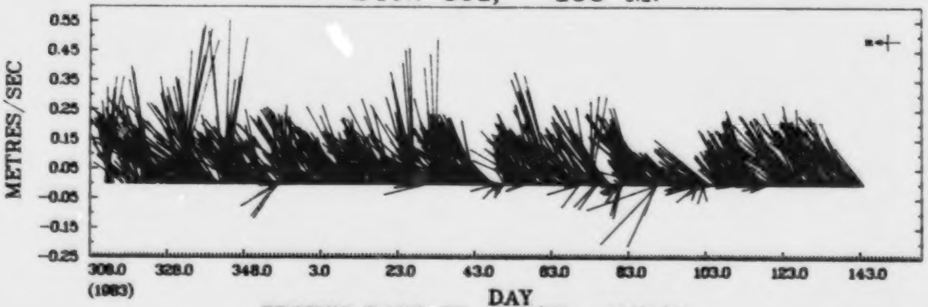

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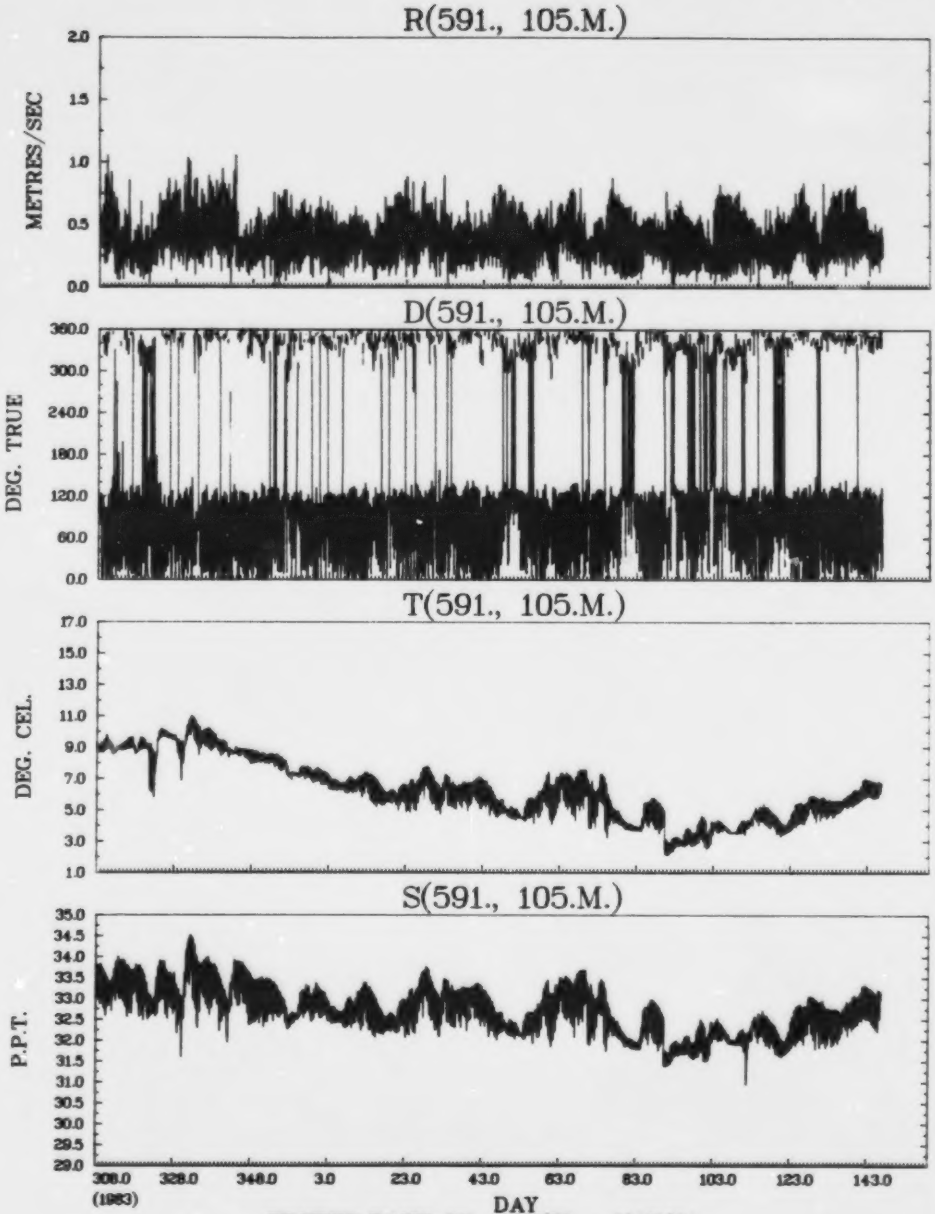

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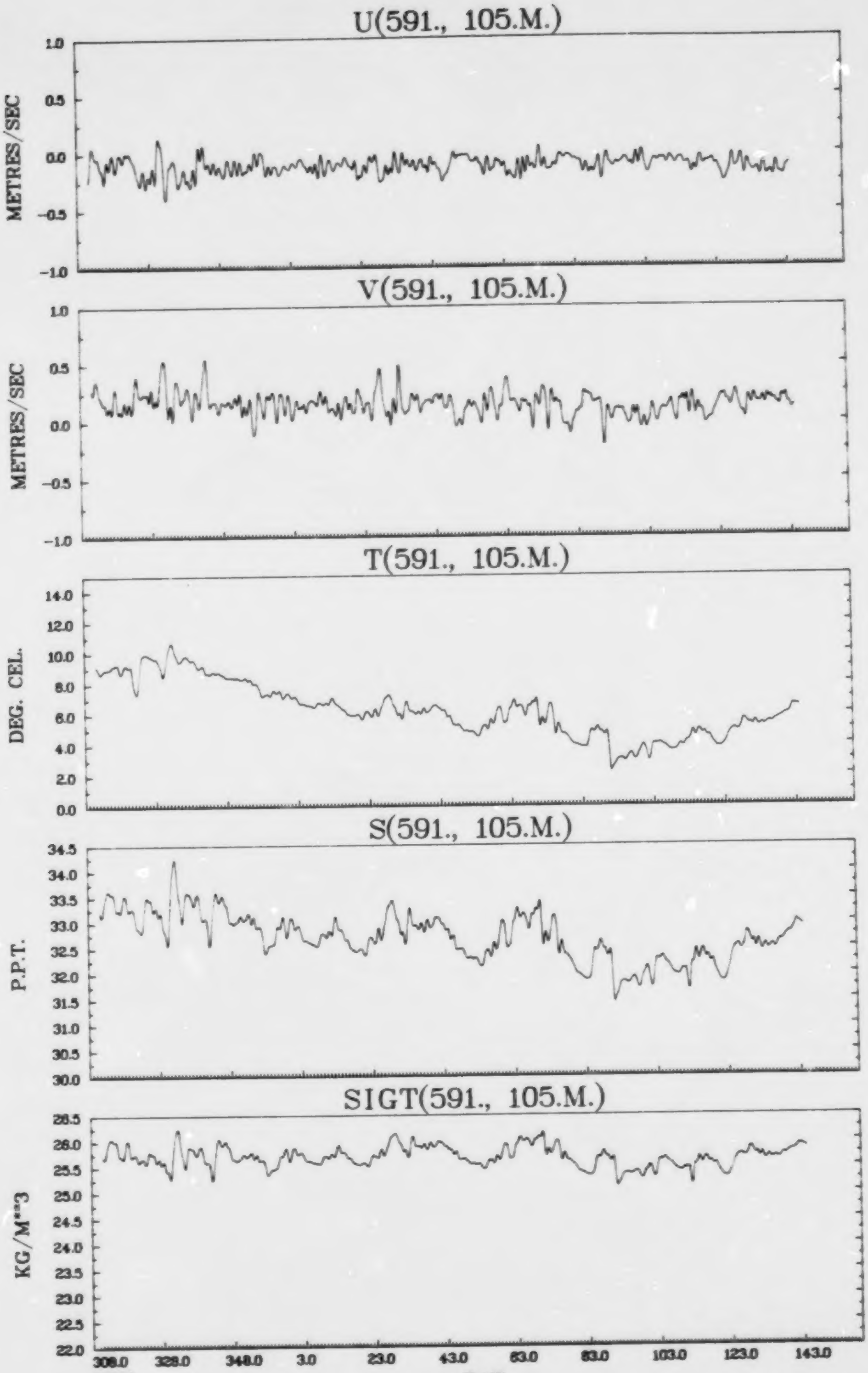

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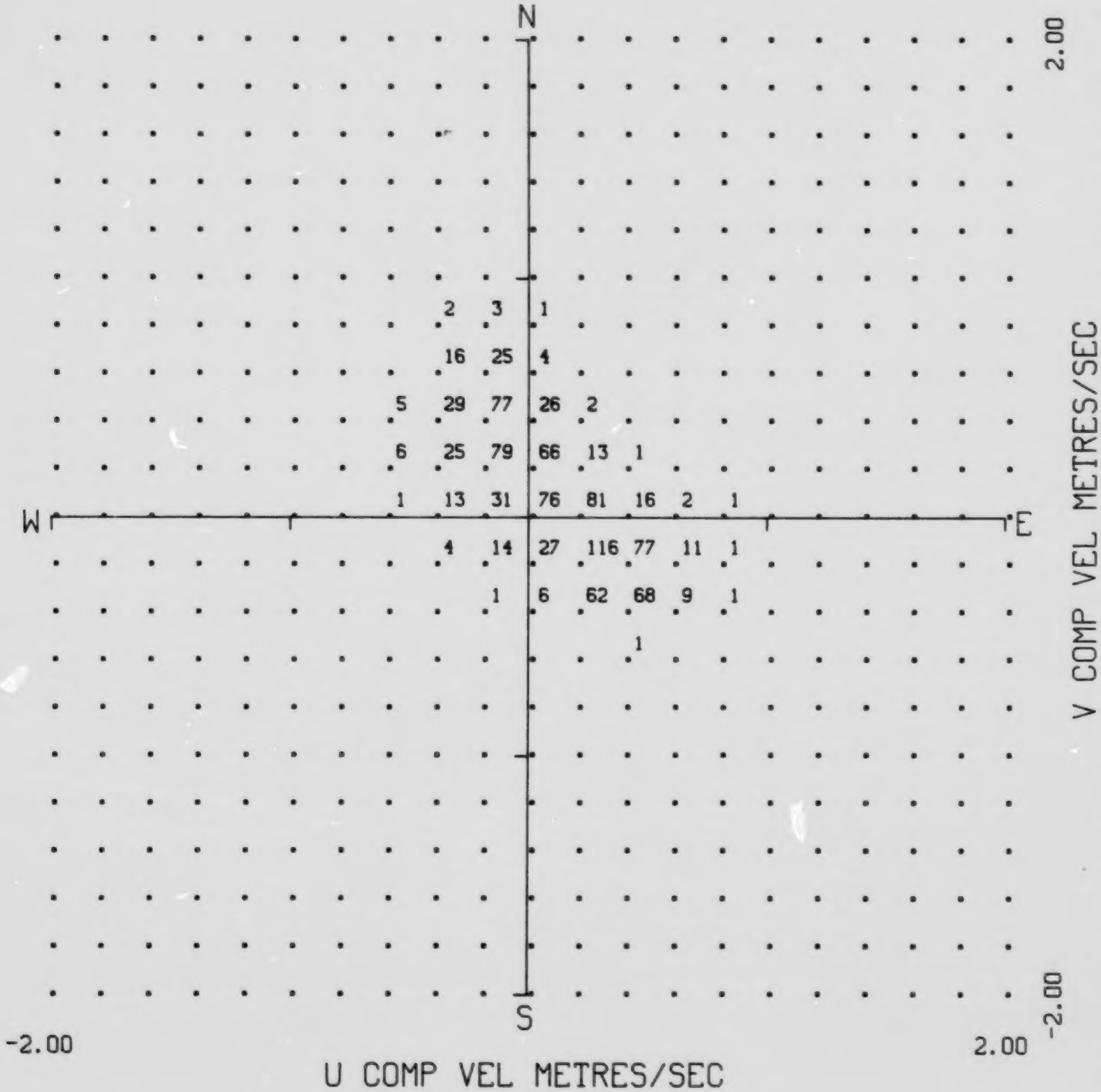

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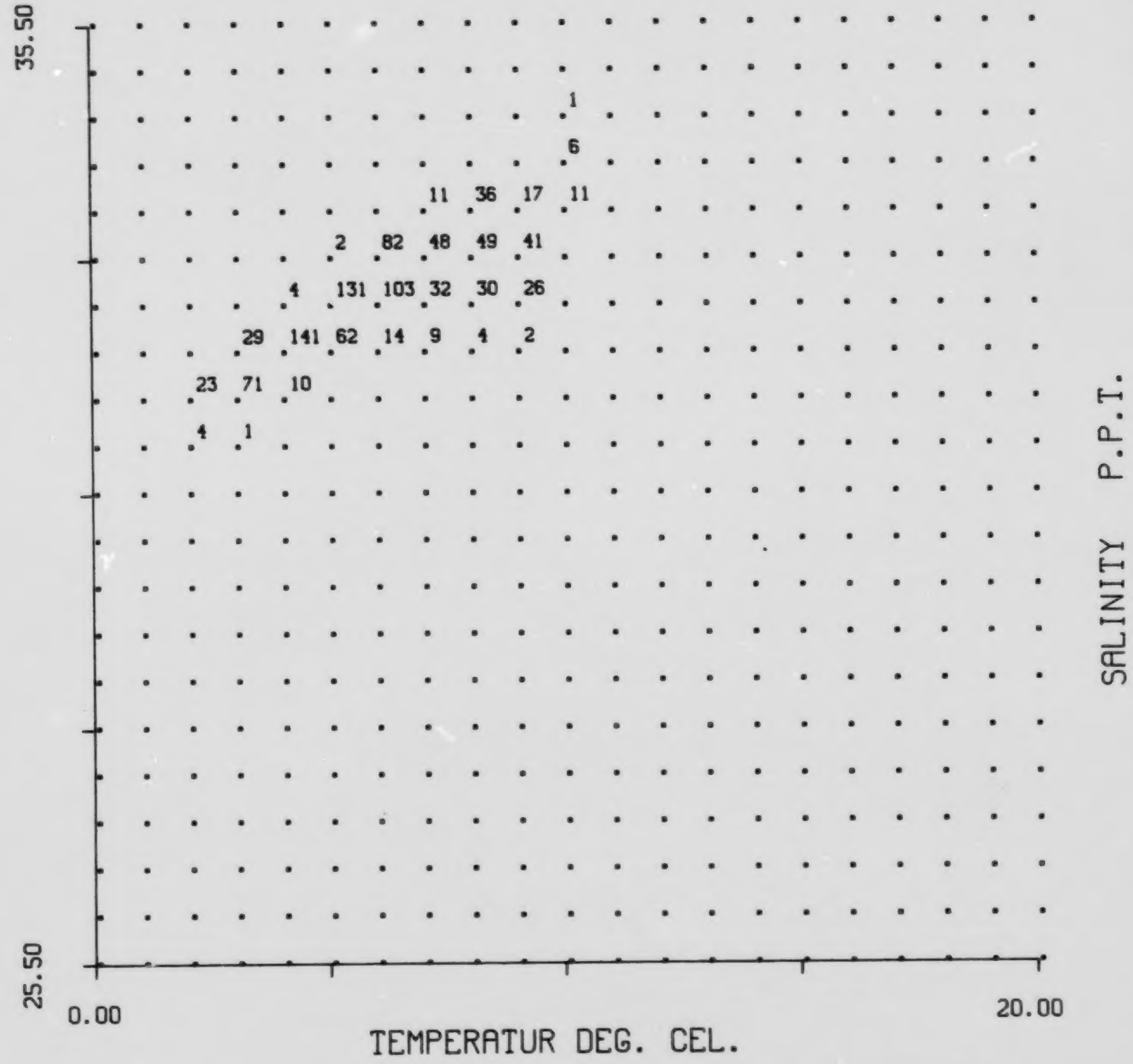

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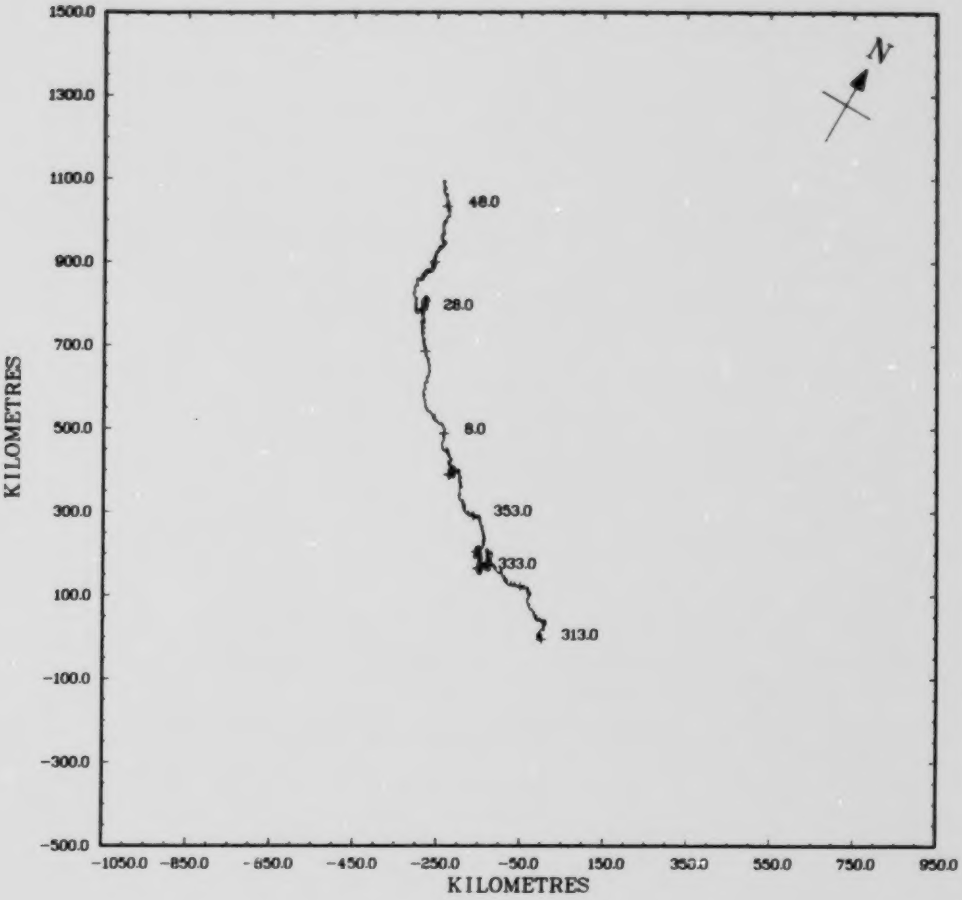

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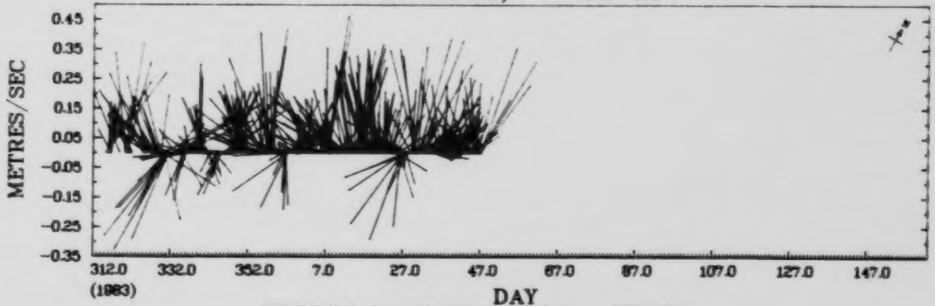
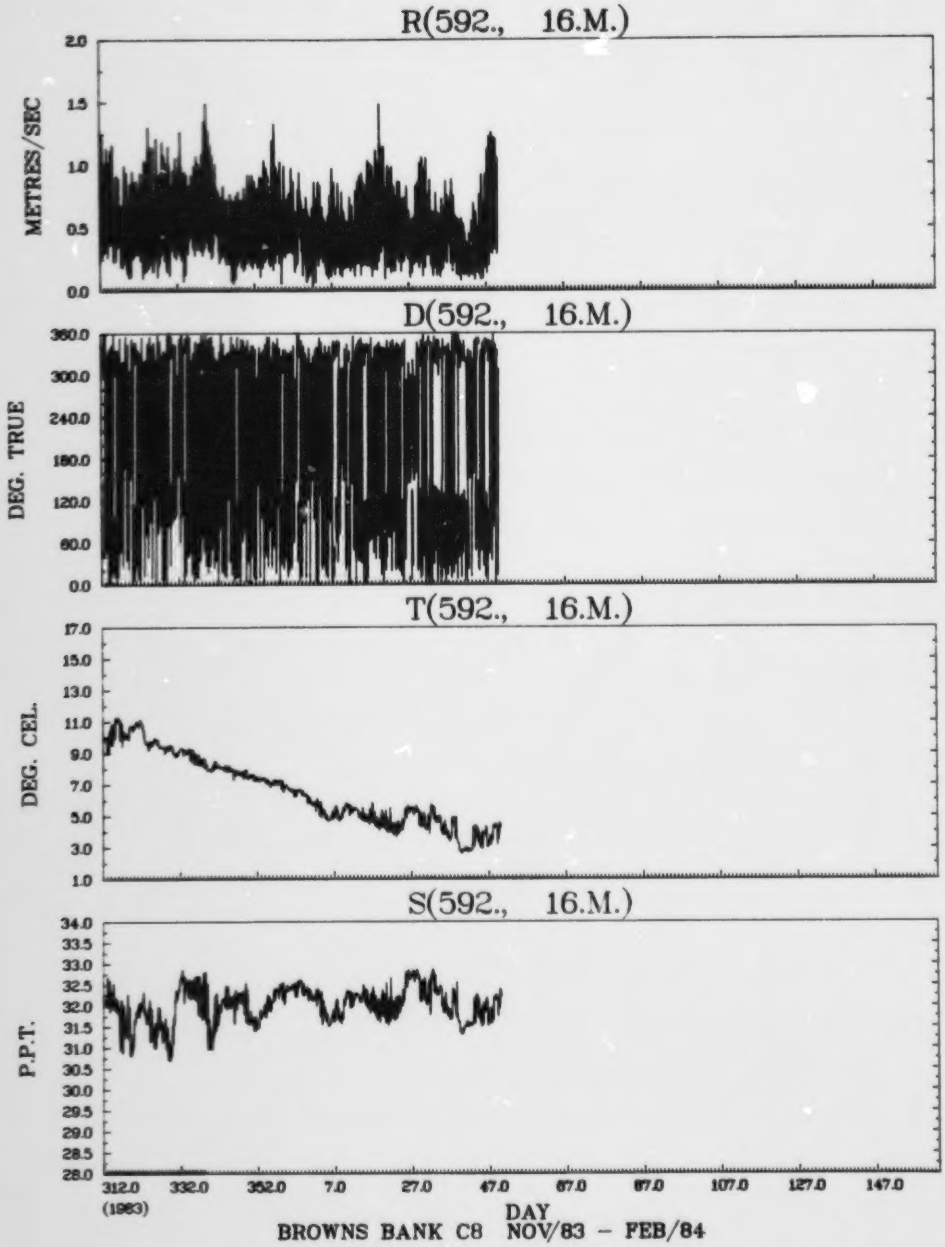


BROWNS BANK C8 NOV/83 − FEB/84



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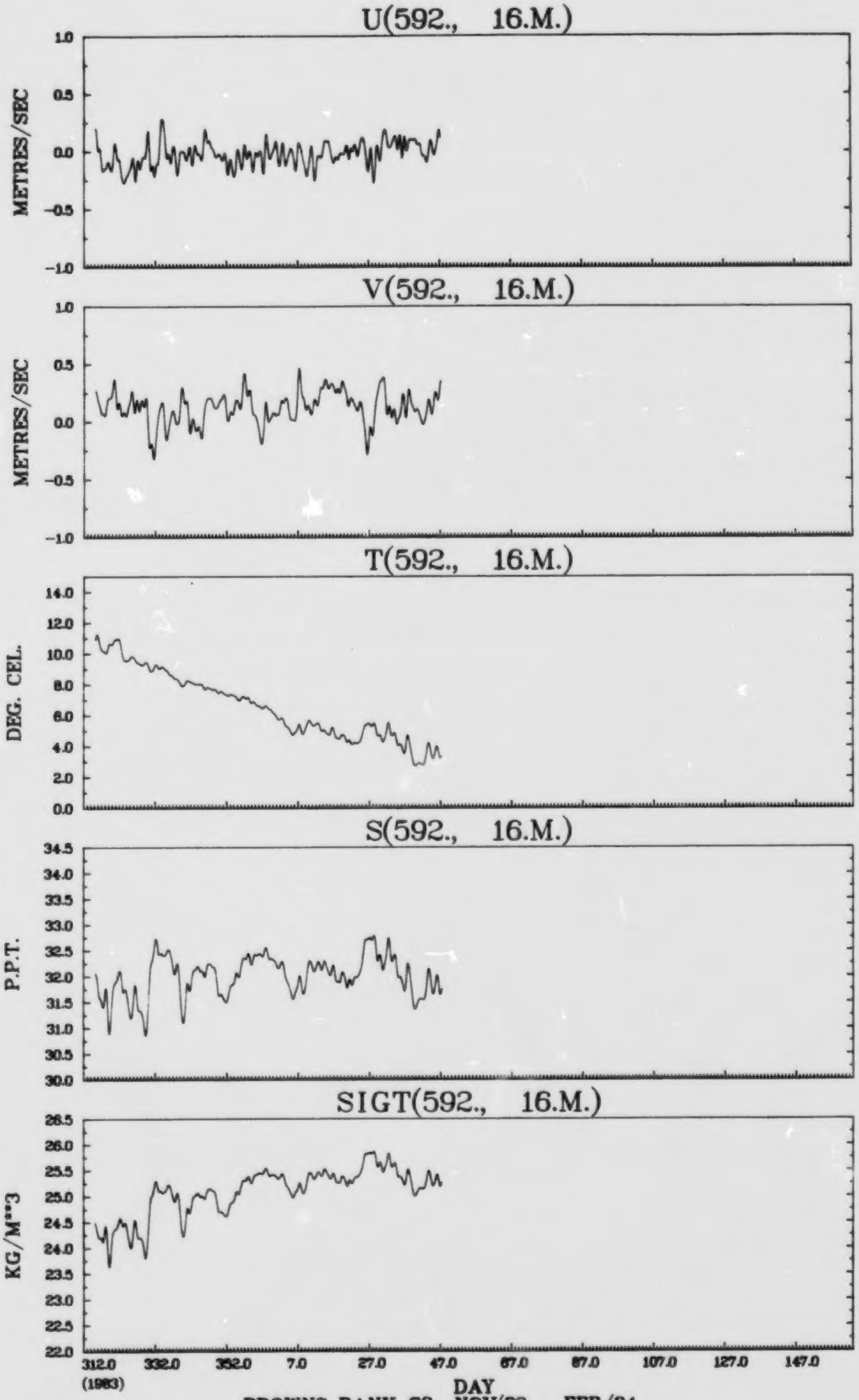

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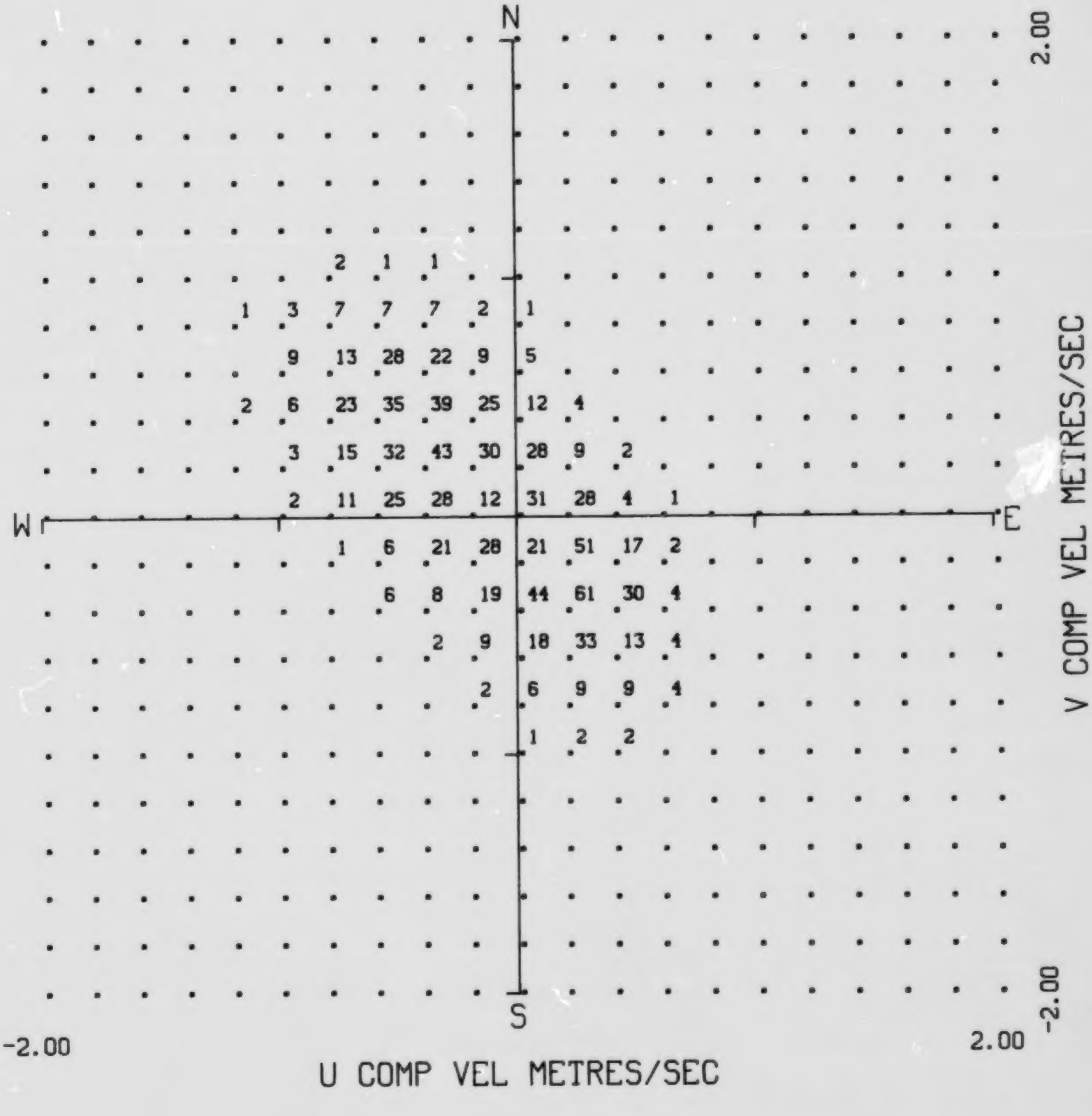

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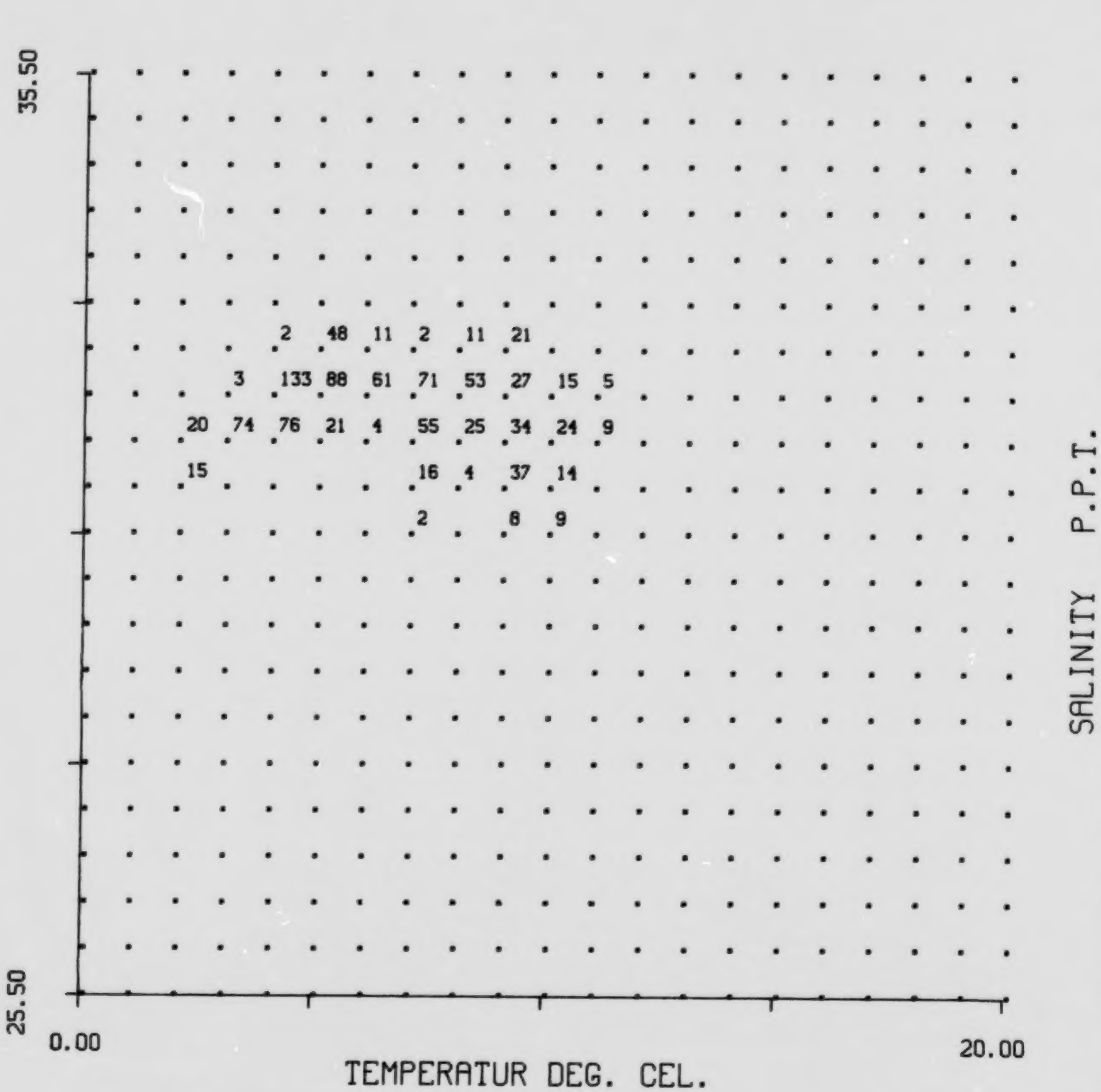

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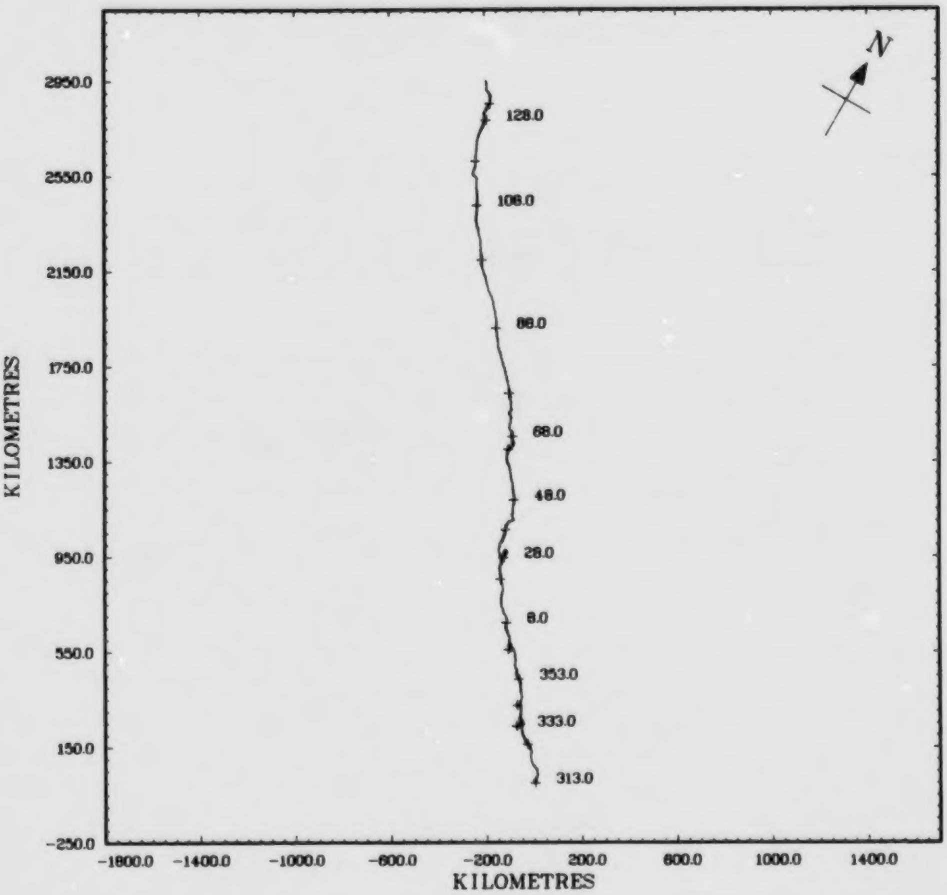
STN. 592, 30 M.



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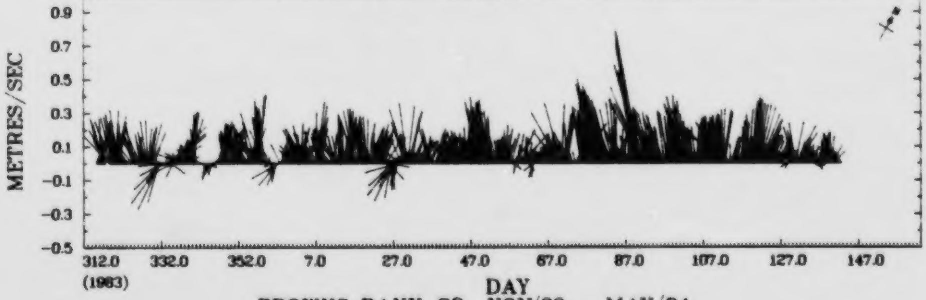
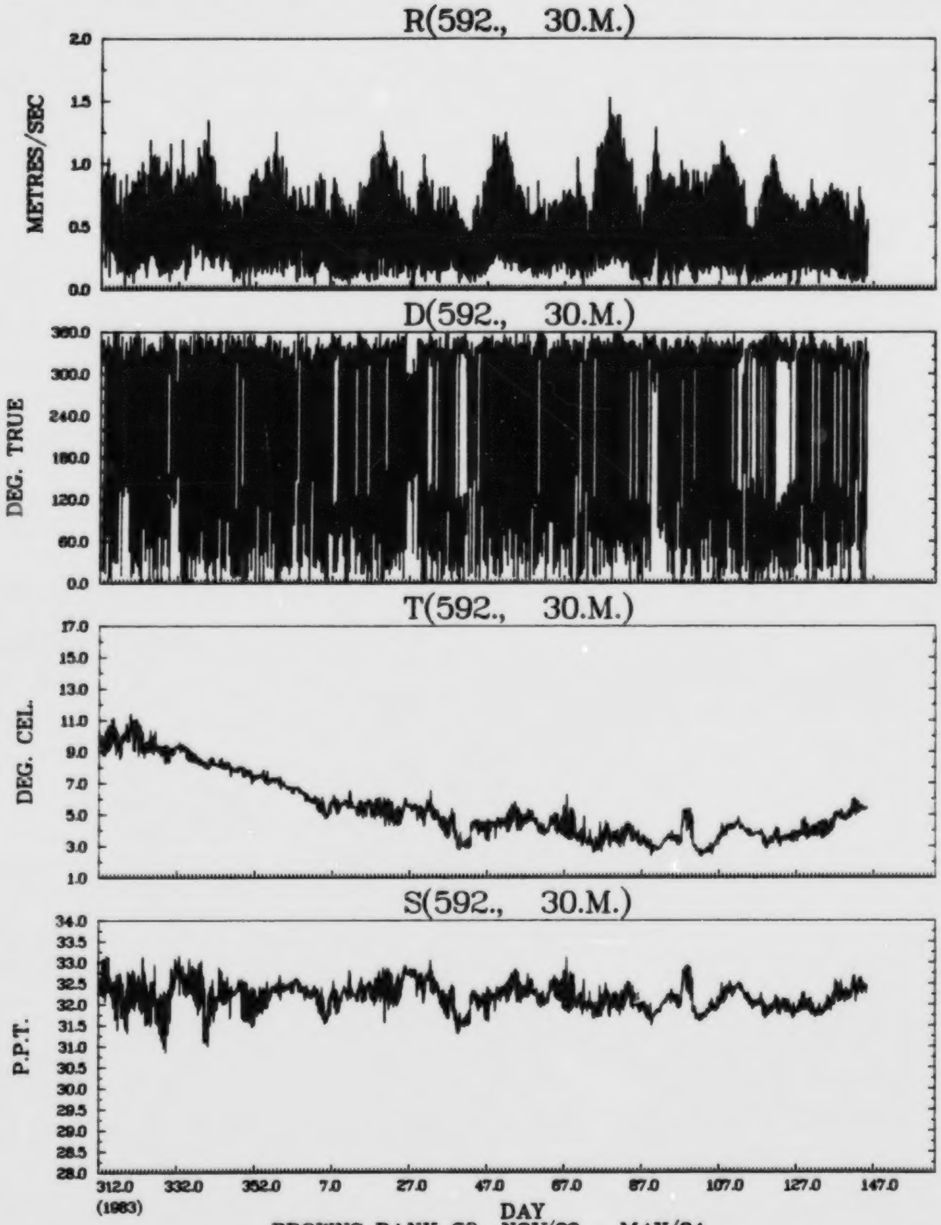
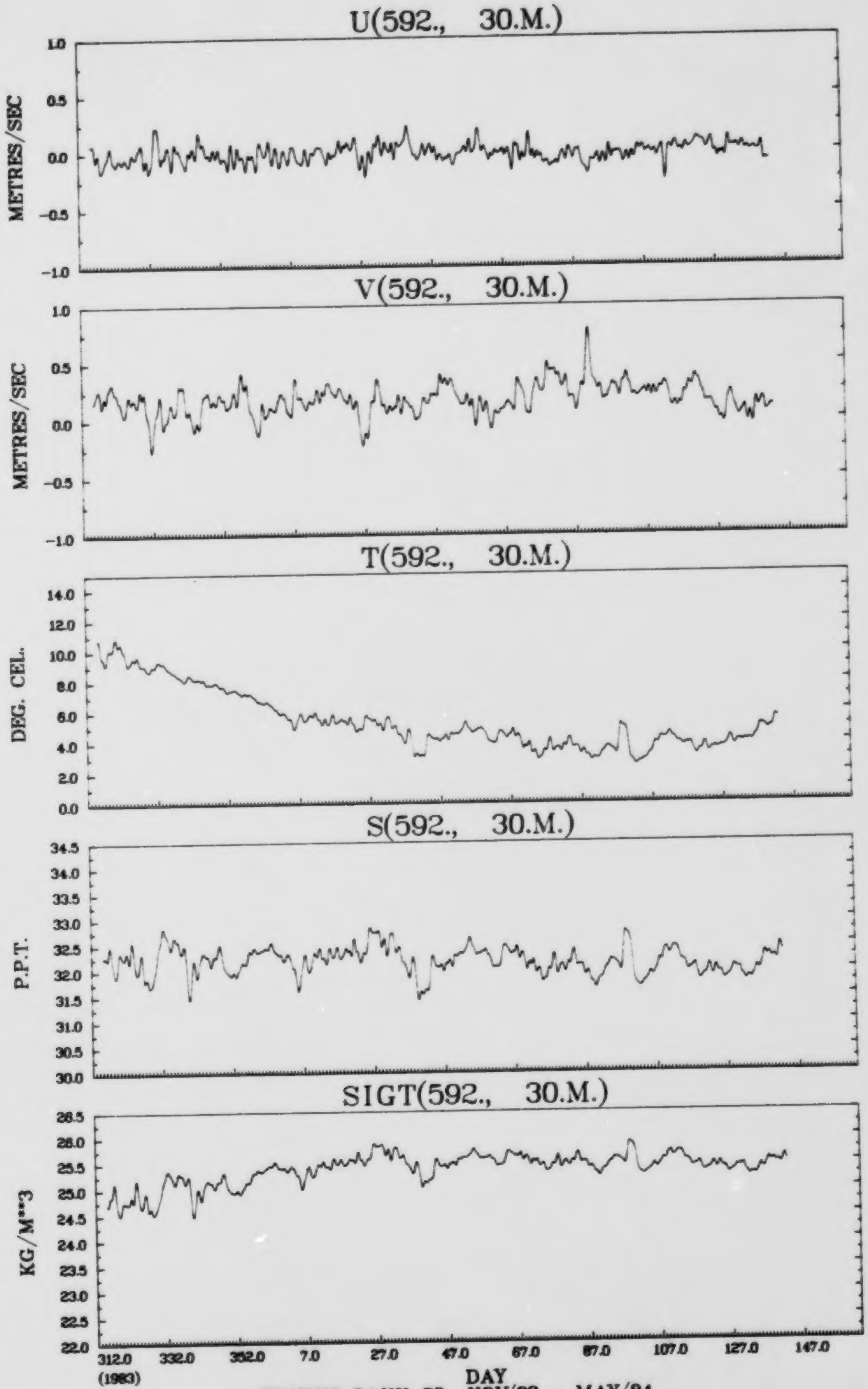


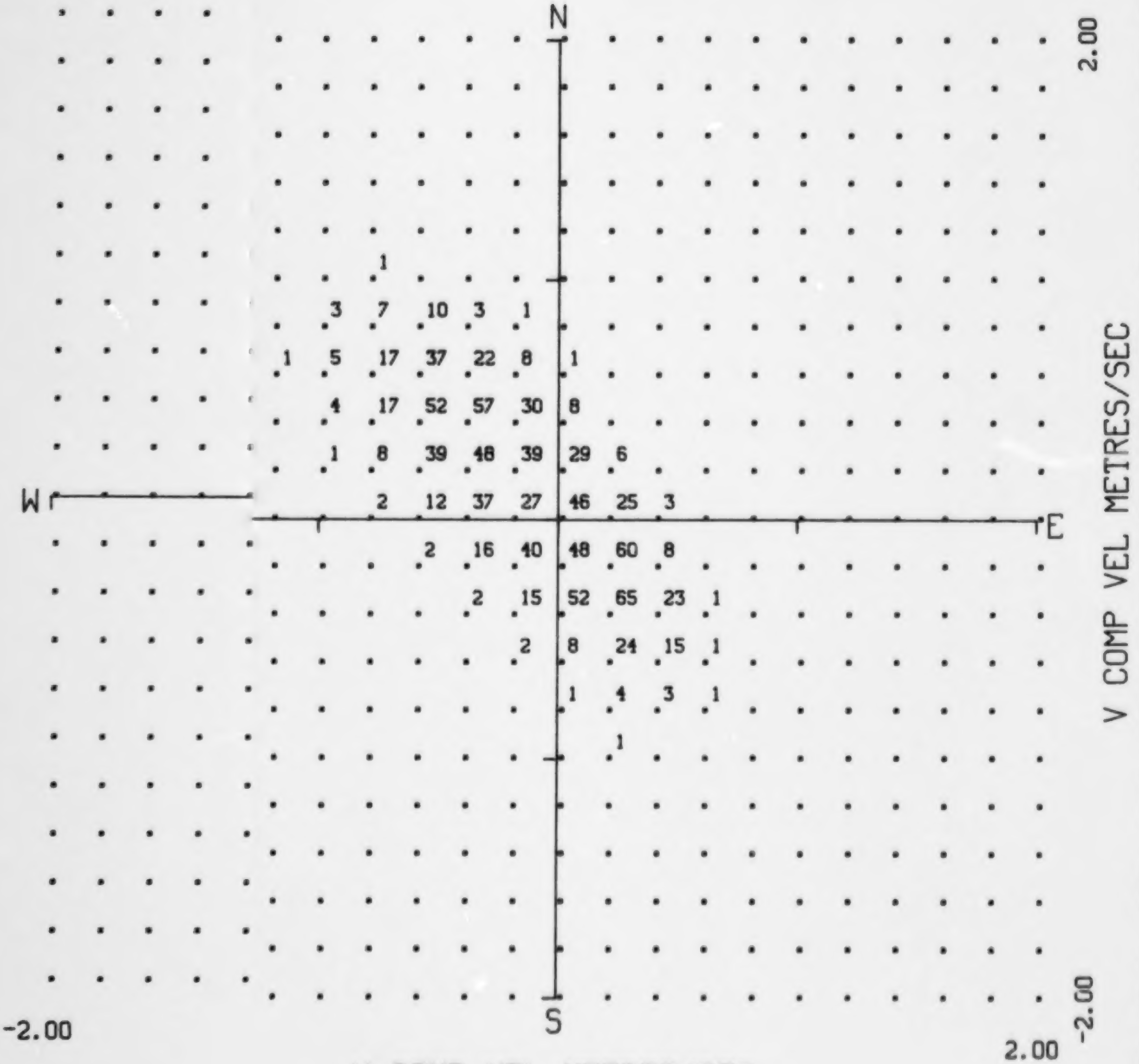
BROWNS BANK C8 NOV/83 - MAY/84



BROWNS BANK C8 NOV/83 - MAY/84



BROWNS BANK C8 NOV/83 - MAY/84



FREQUENCY DISTRIBUTION PLOT
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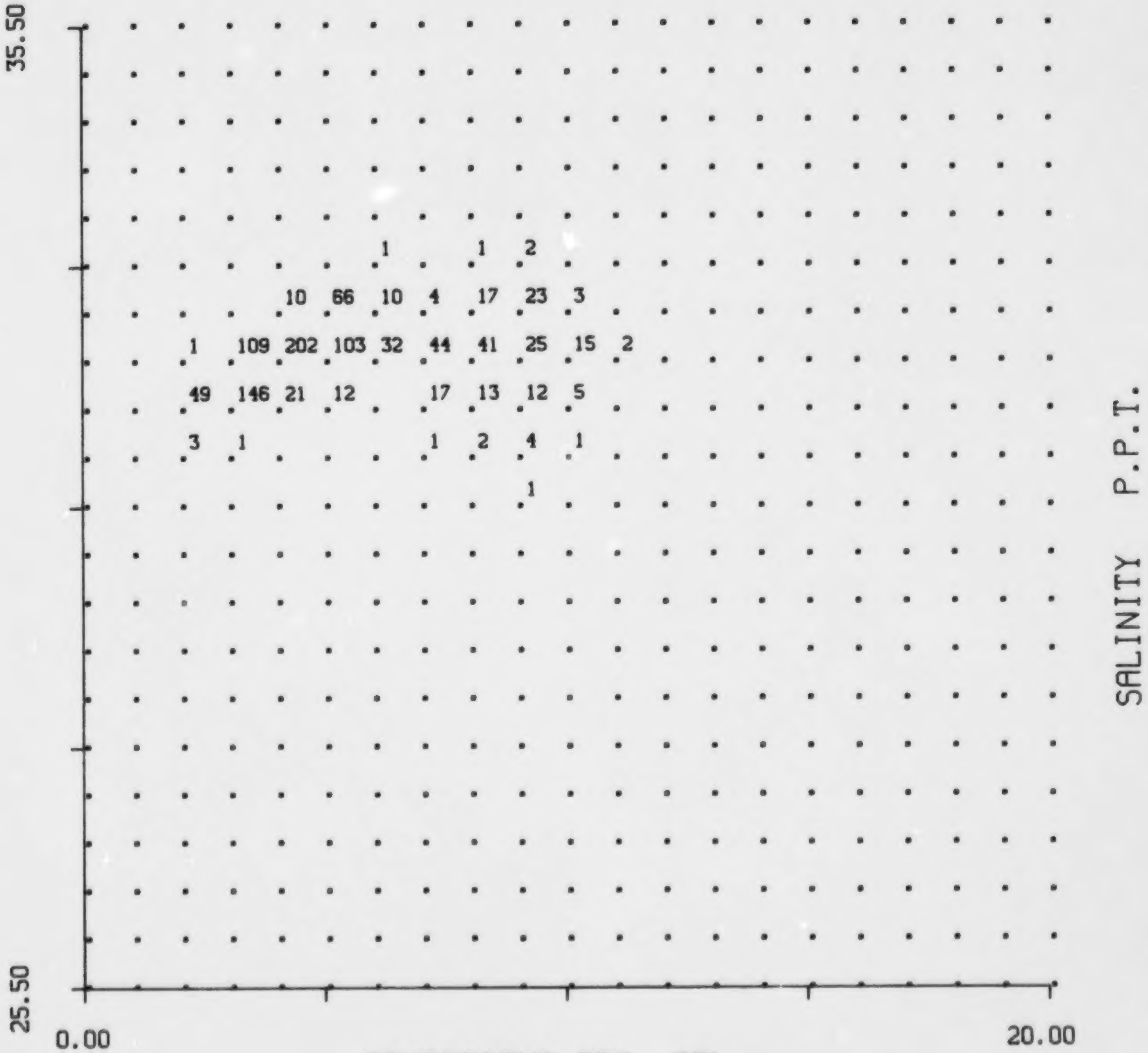

FREQUENCY DISTRIBUTION PLOT
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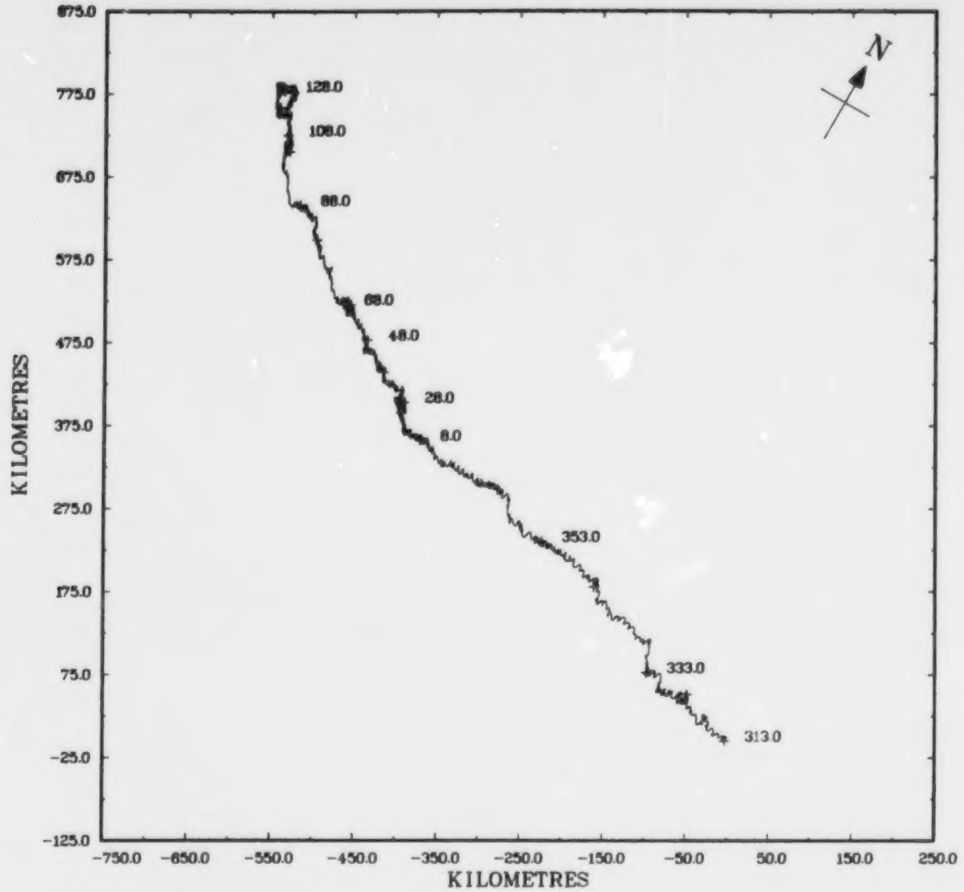

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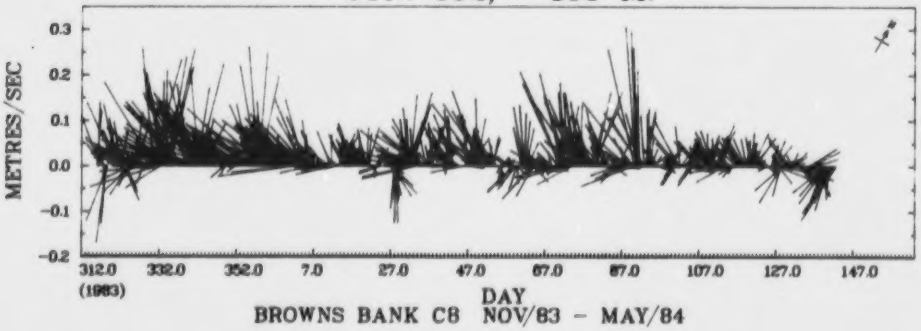
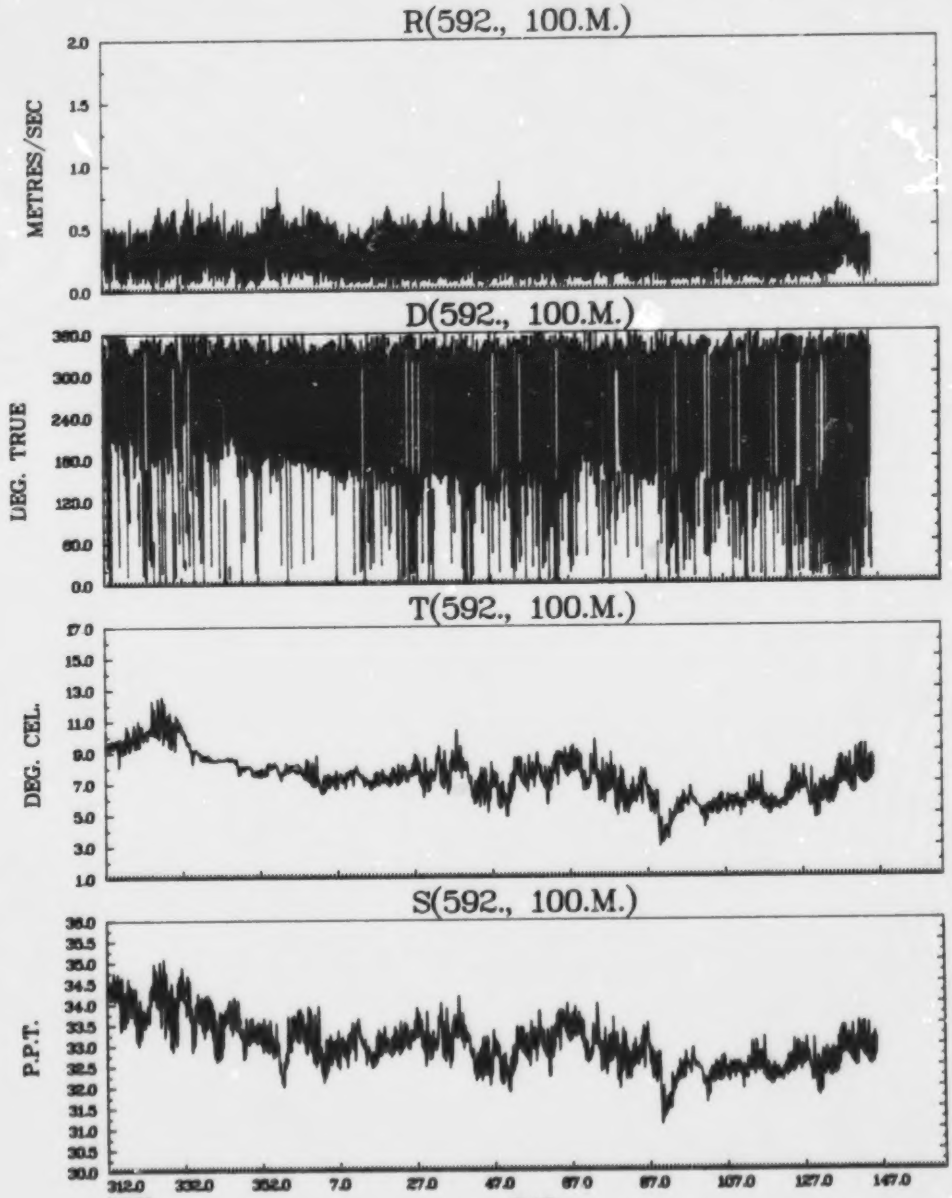


BROWNS BANK C8 NOV/83 - MAY/84



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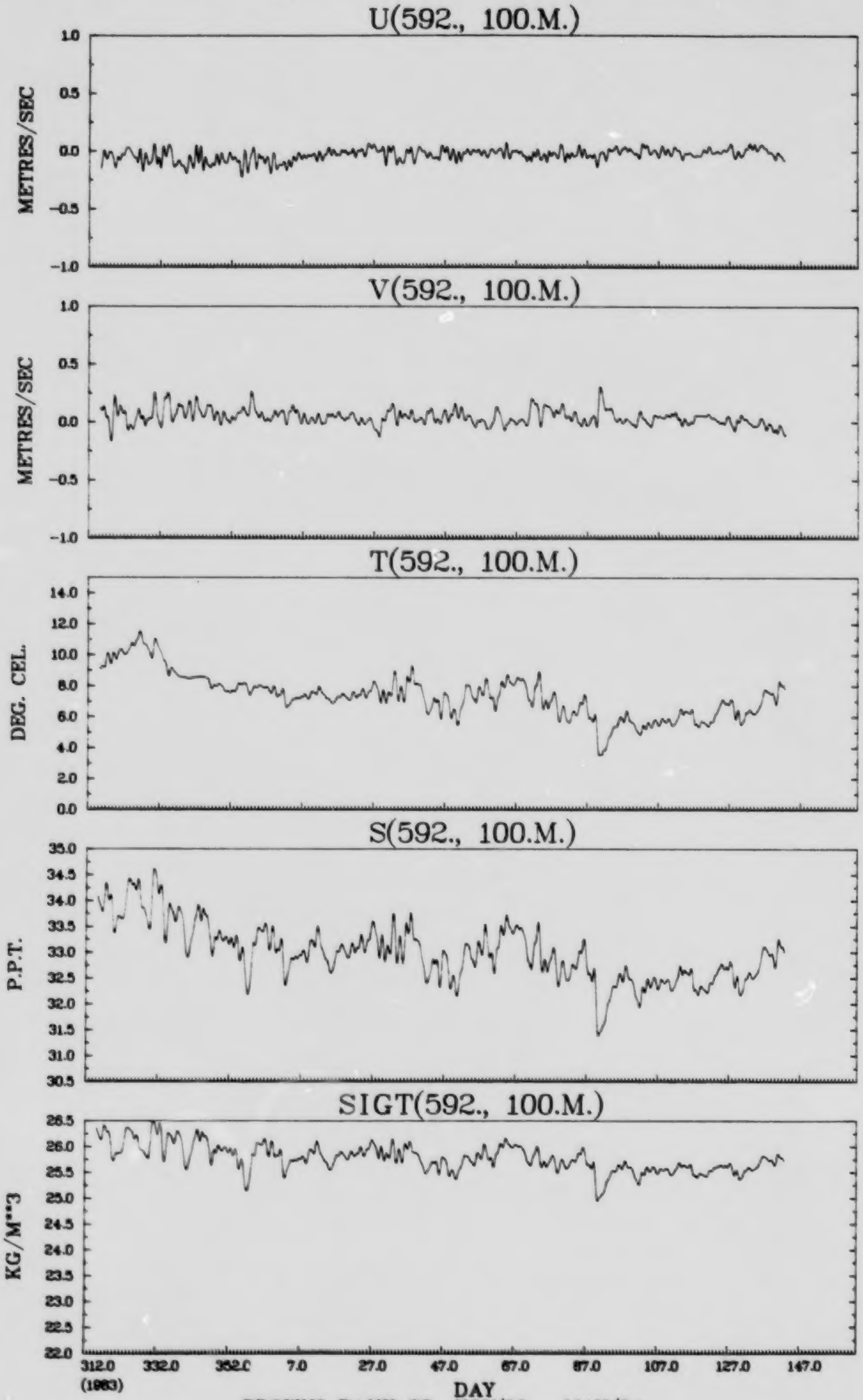

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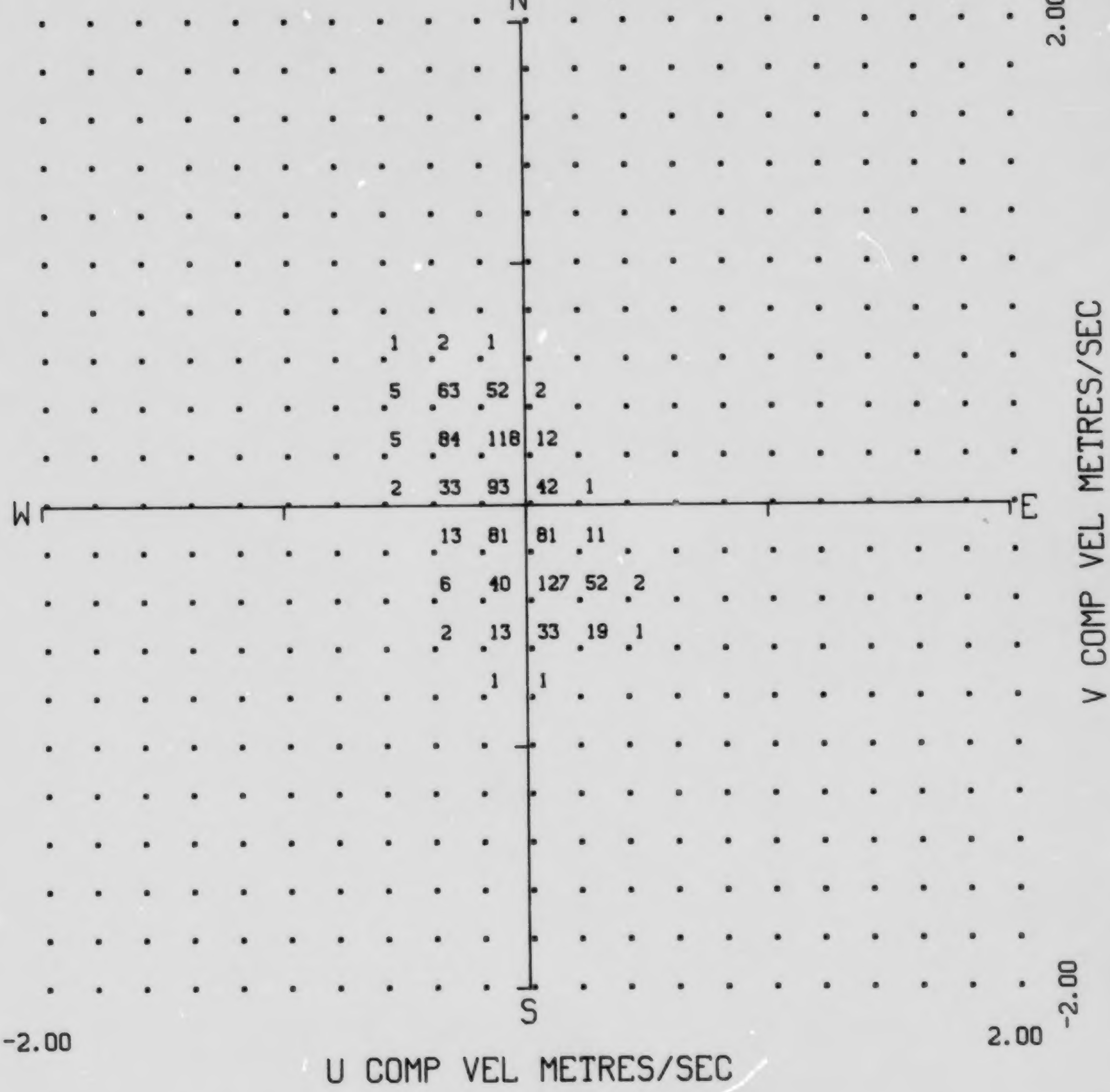

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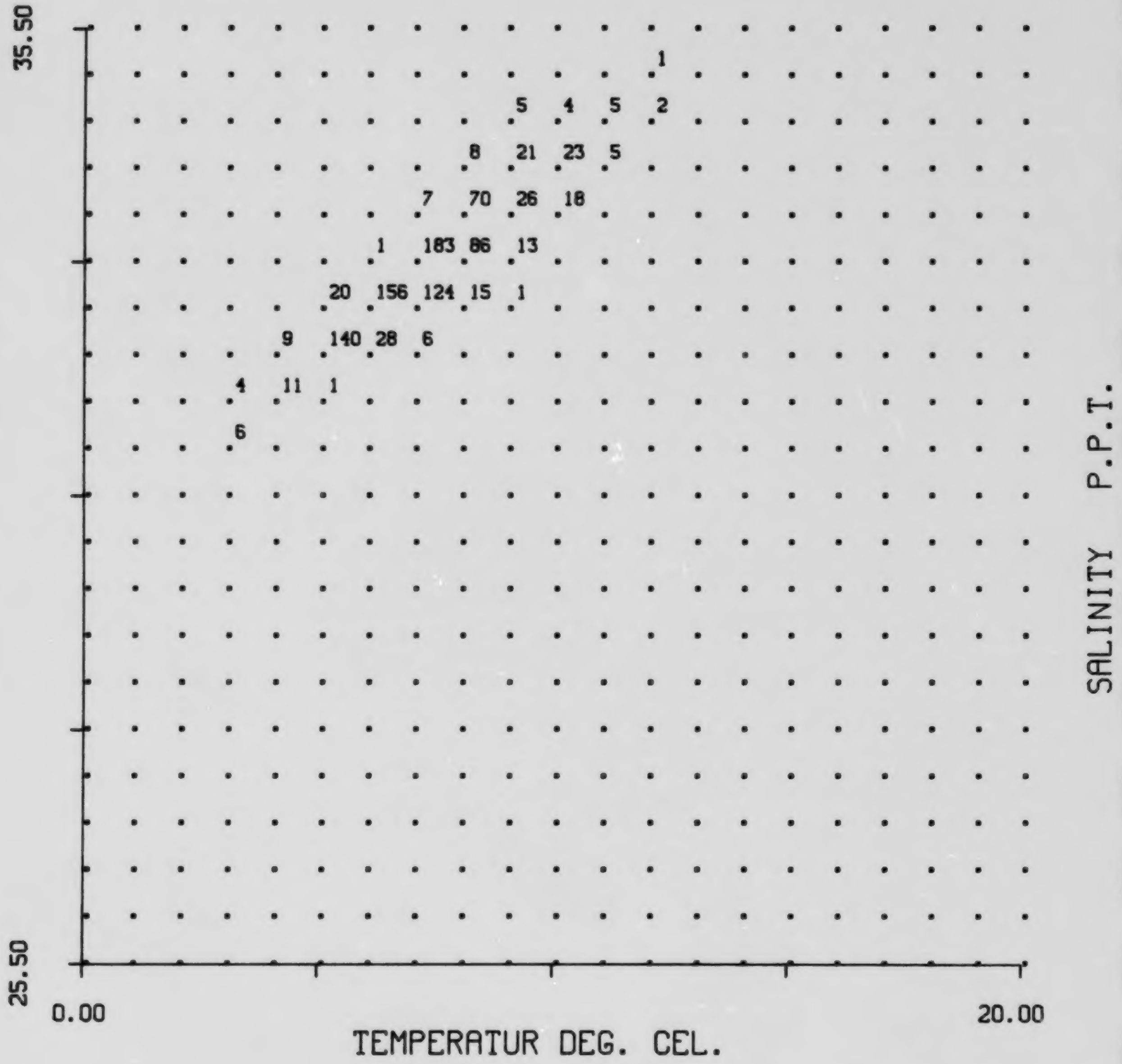

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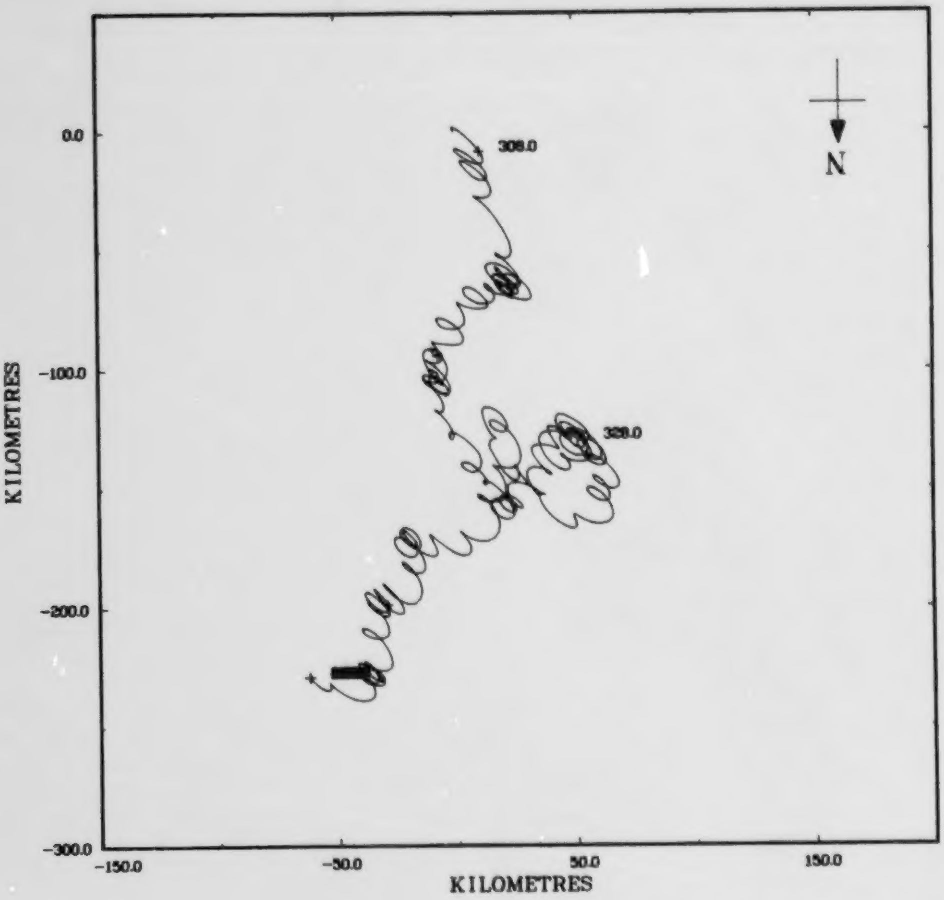

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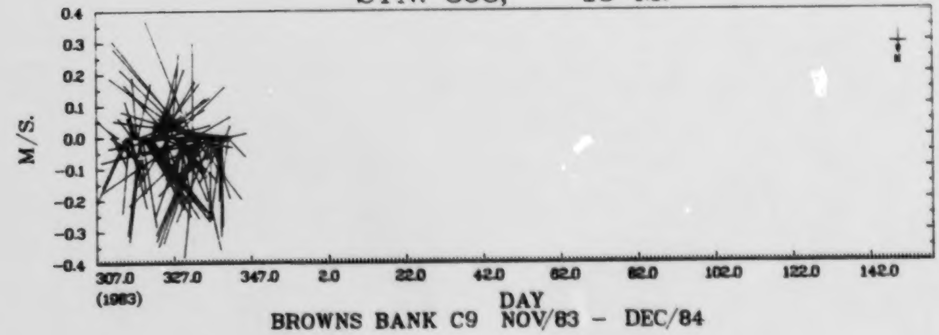

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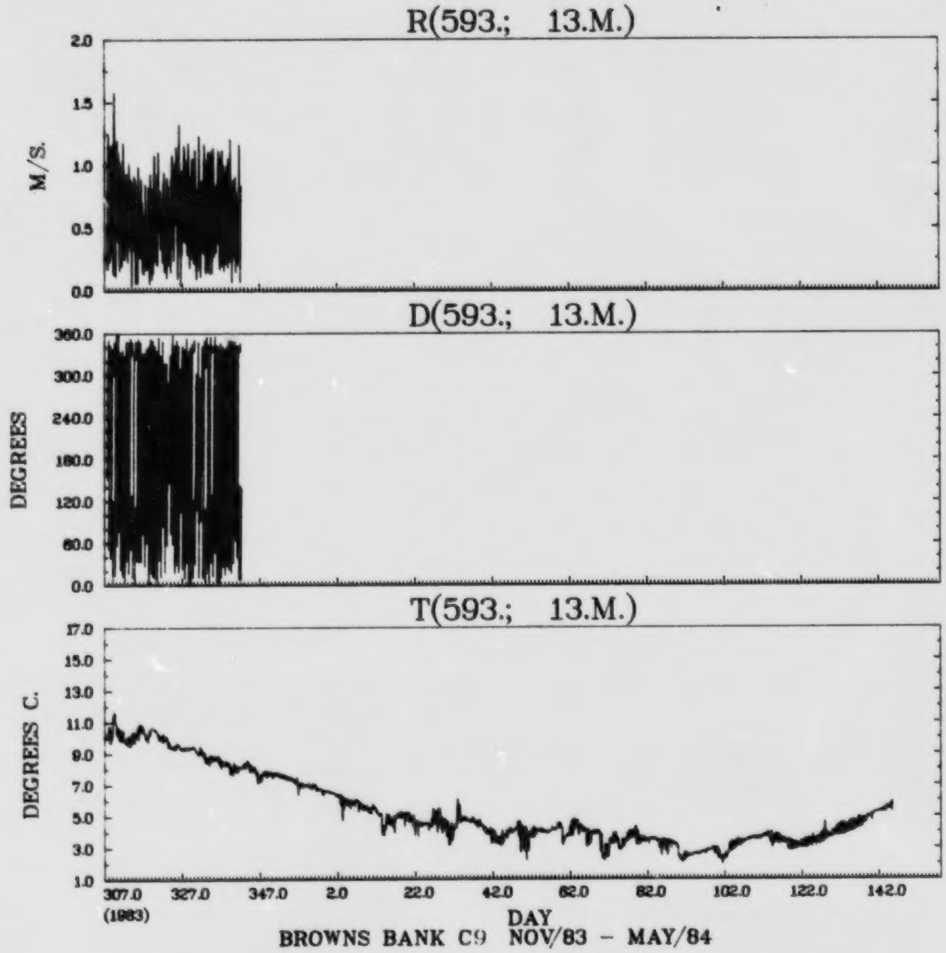

R(593.; 13.M.)

D(593.; 13.M.)

T(593.; 13.M.)

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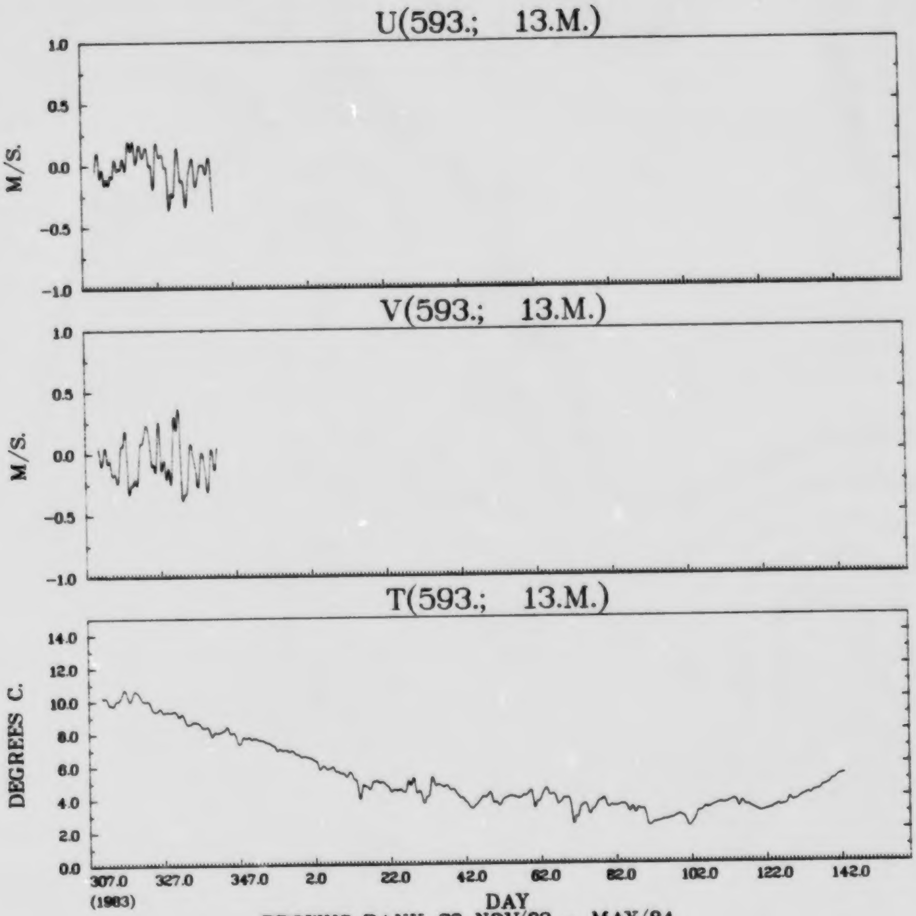

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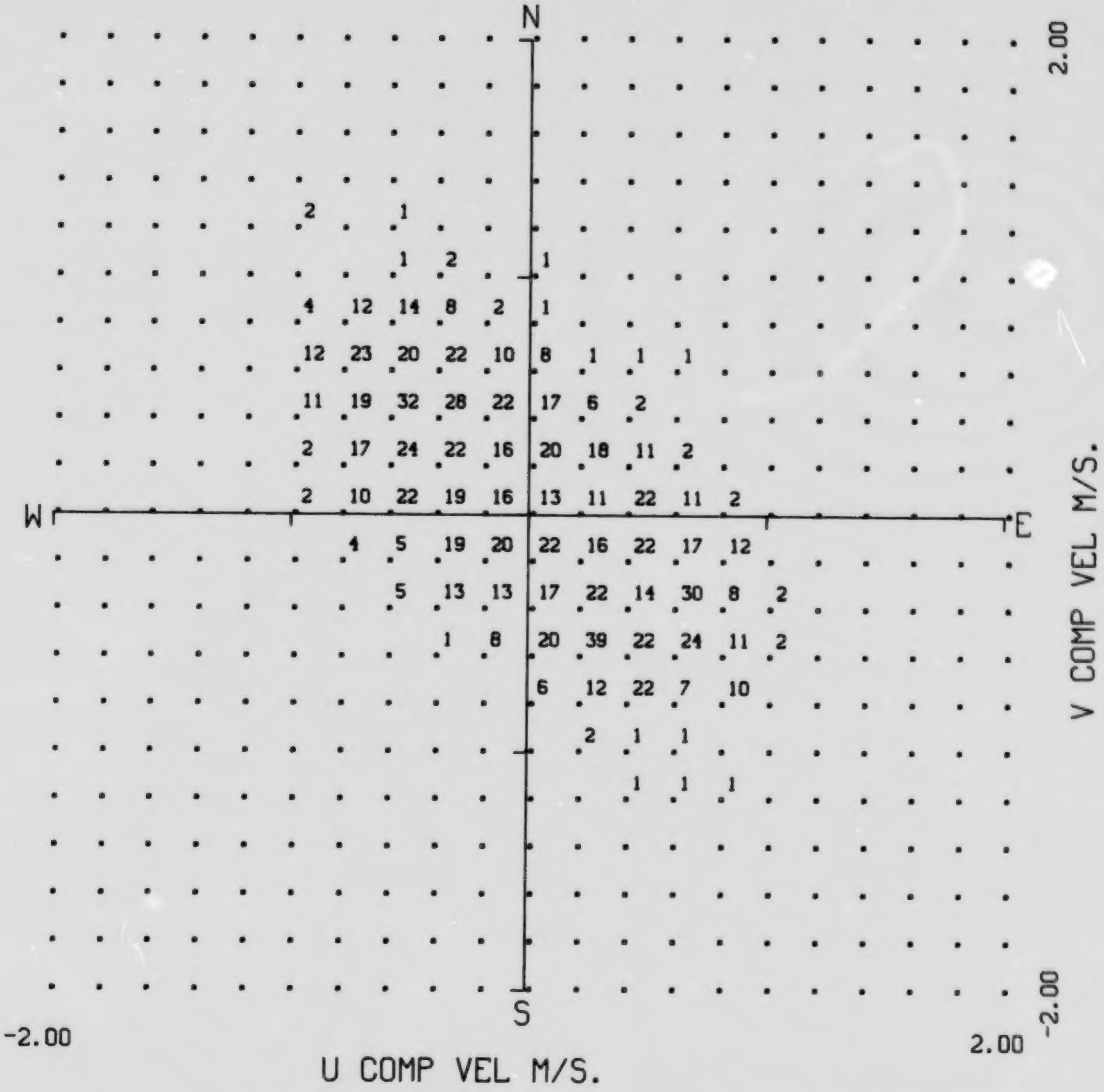

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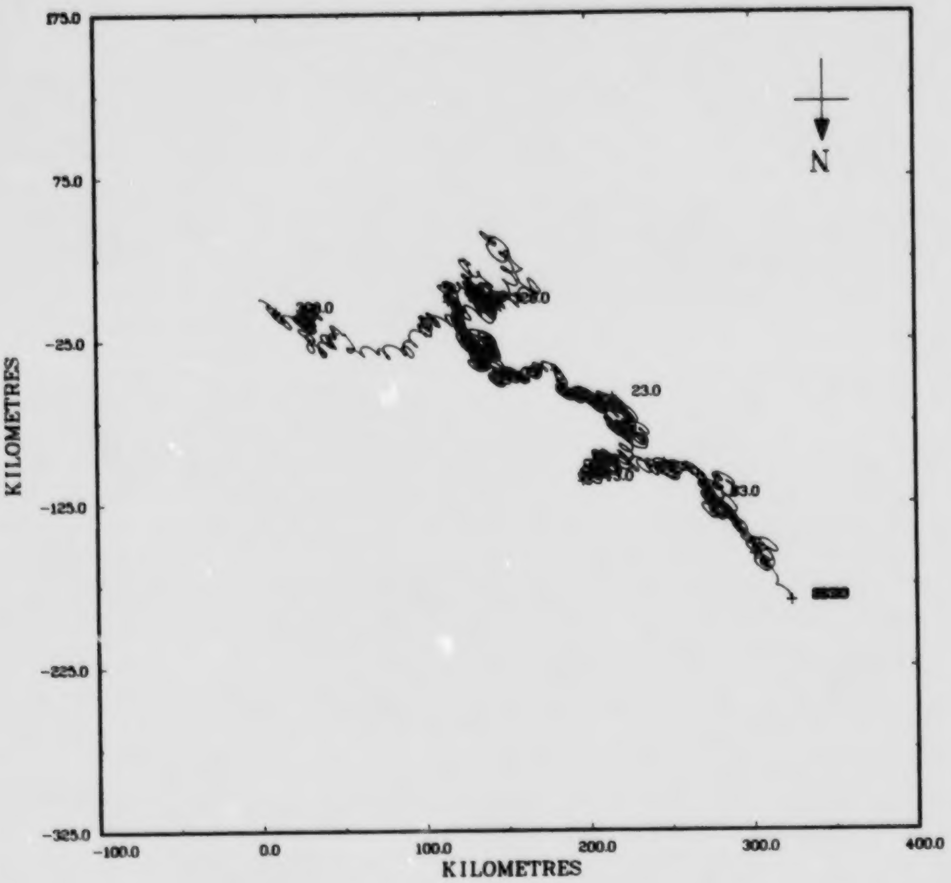

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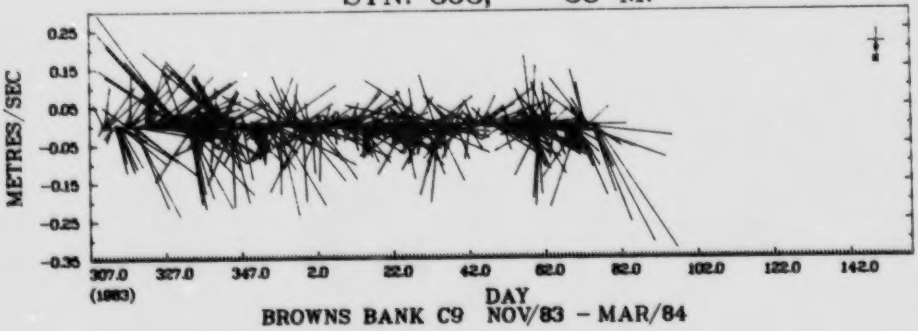

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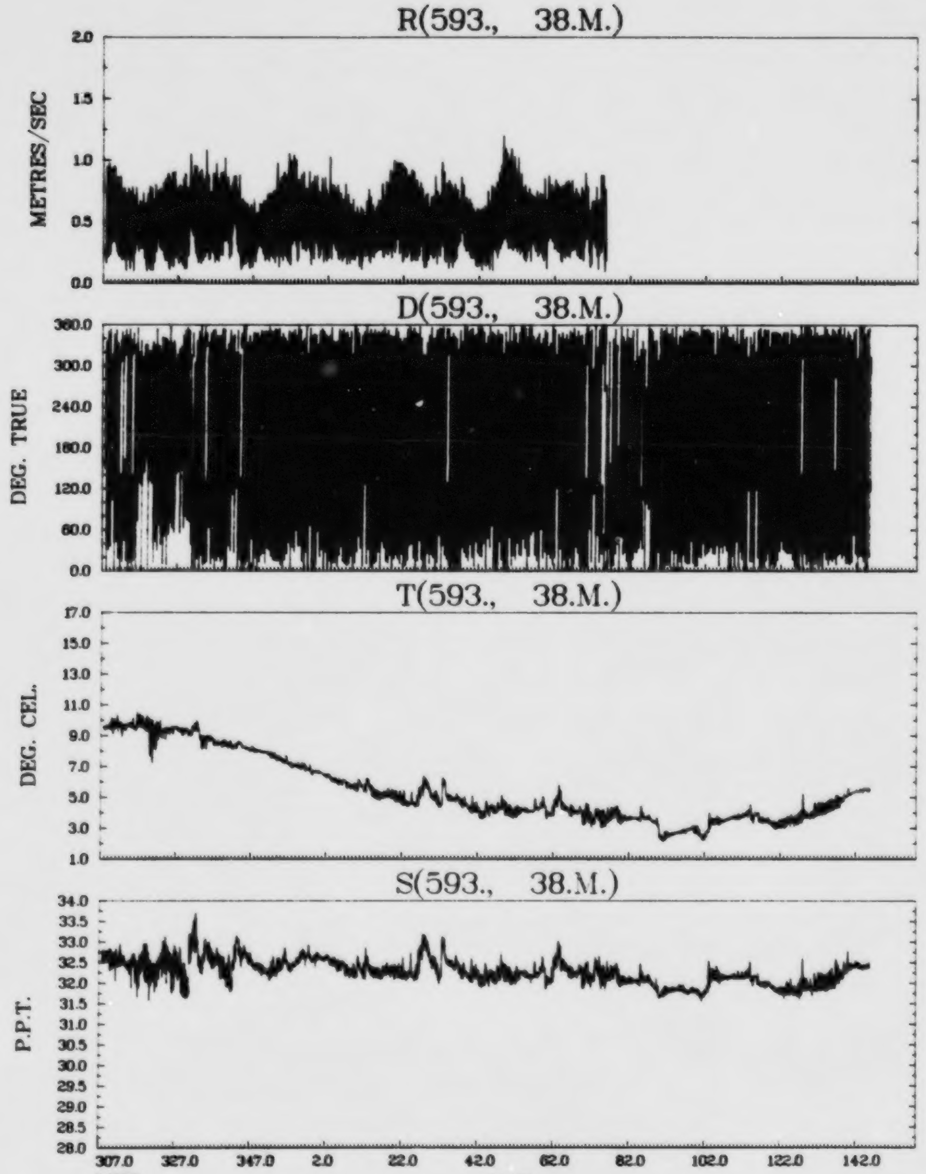

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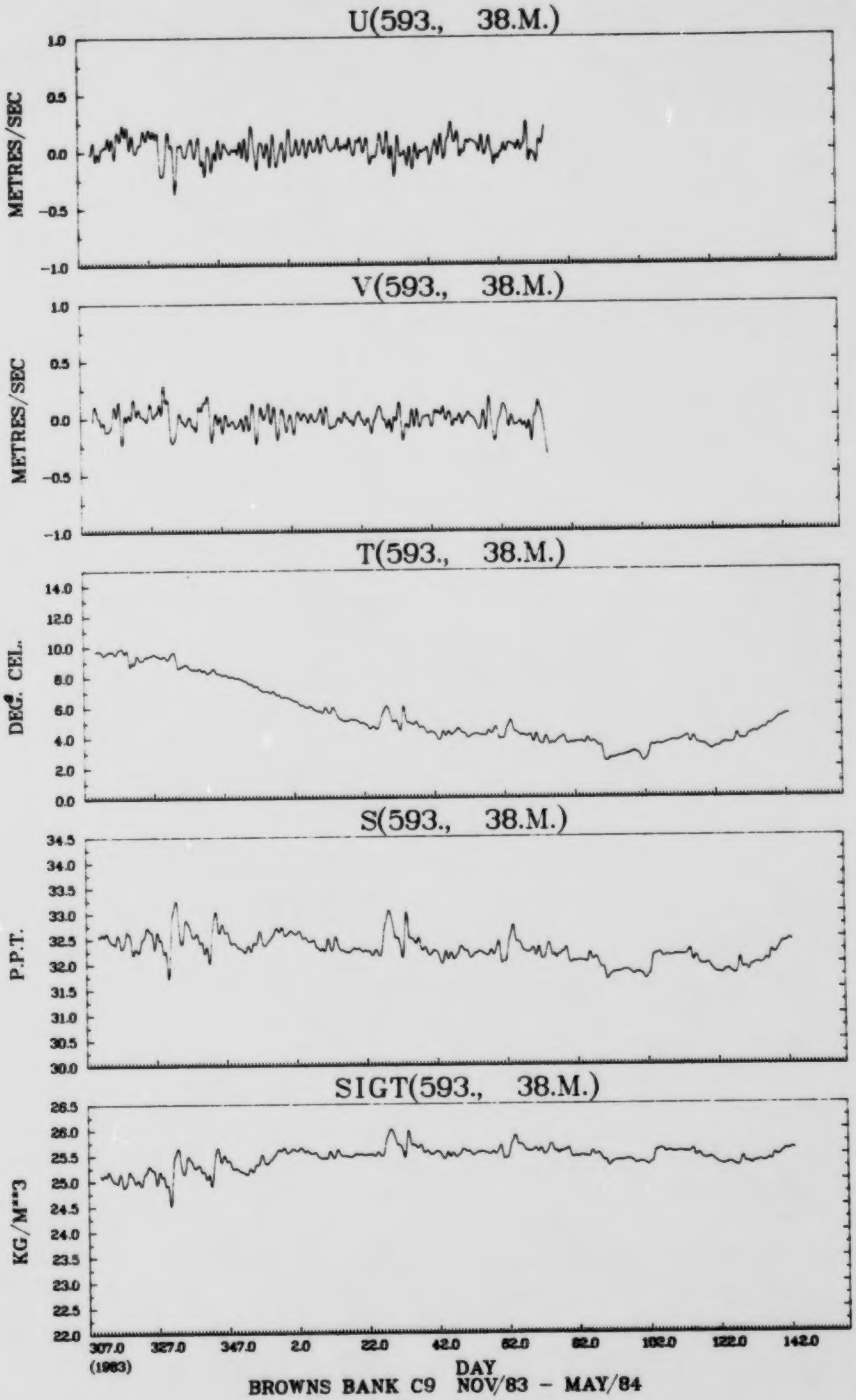

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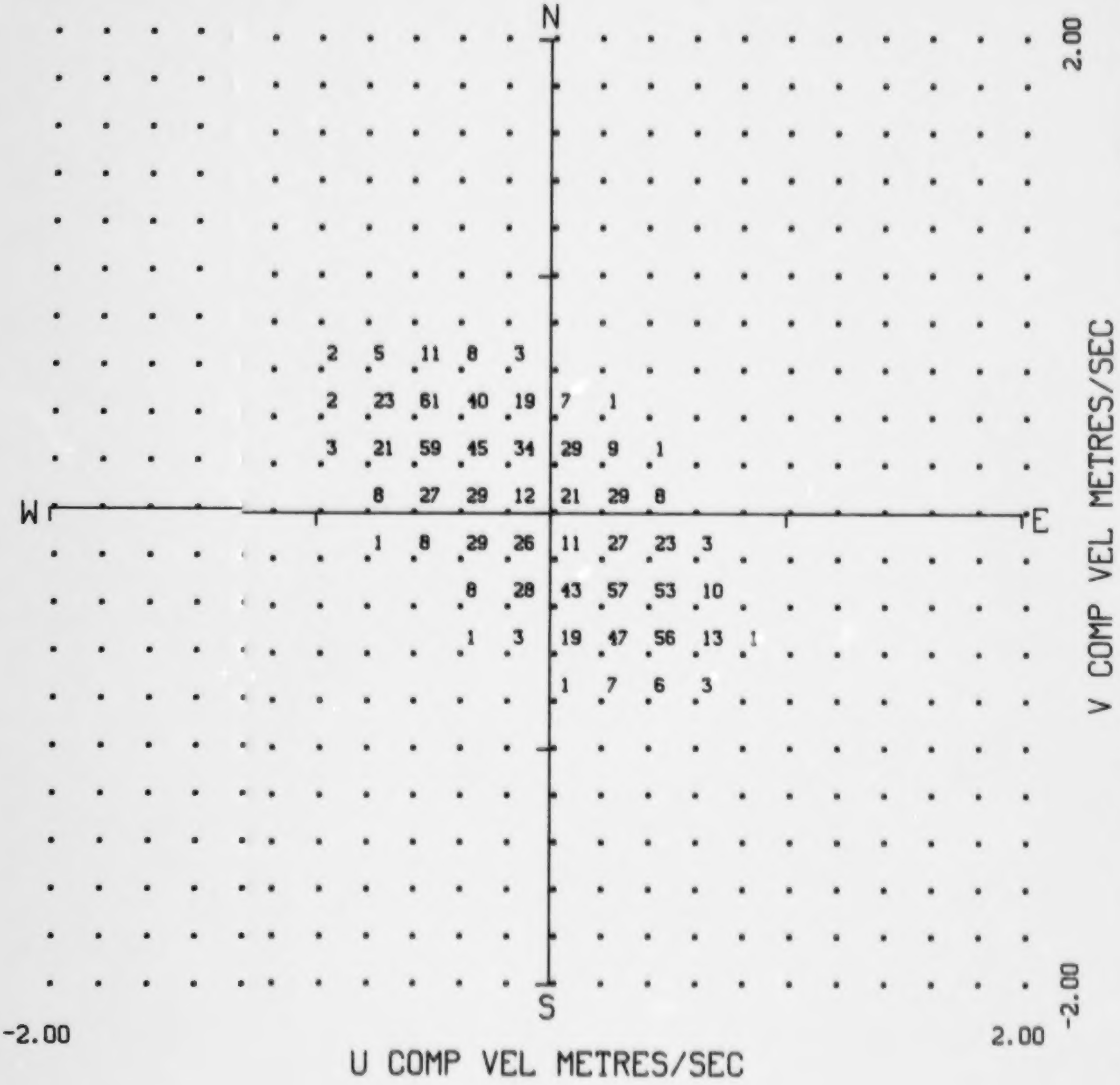

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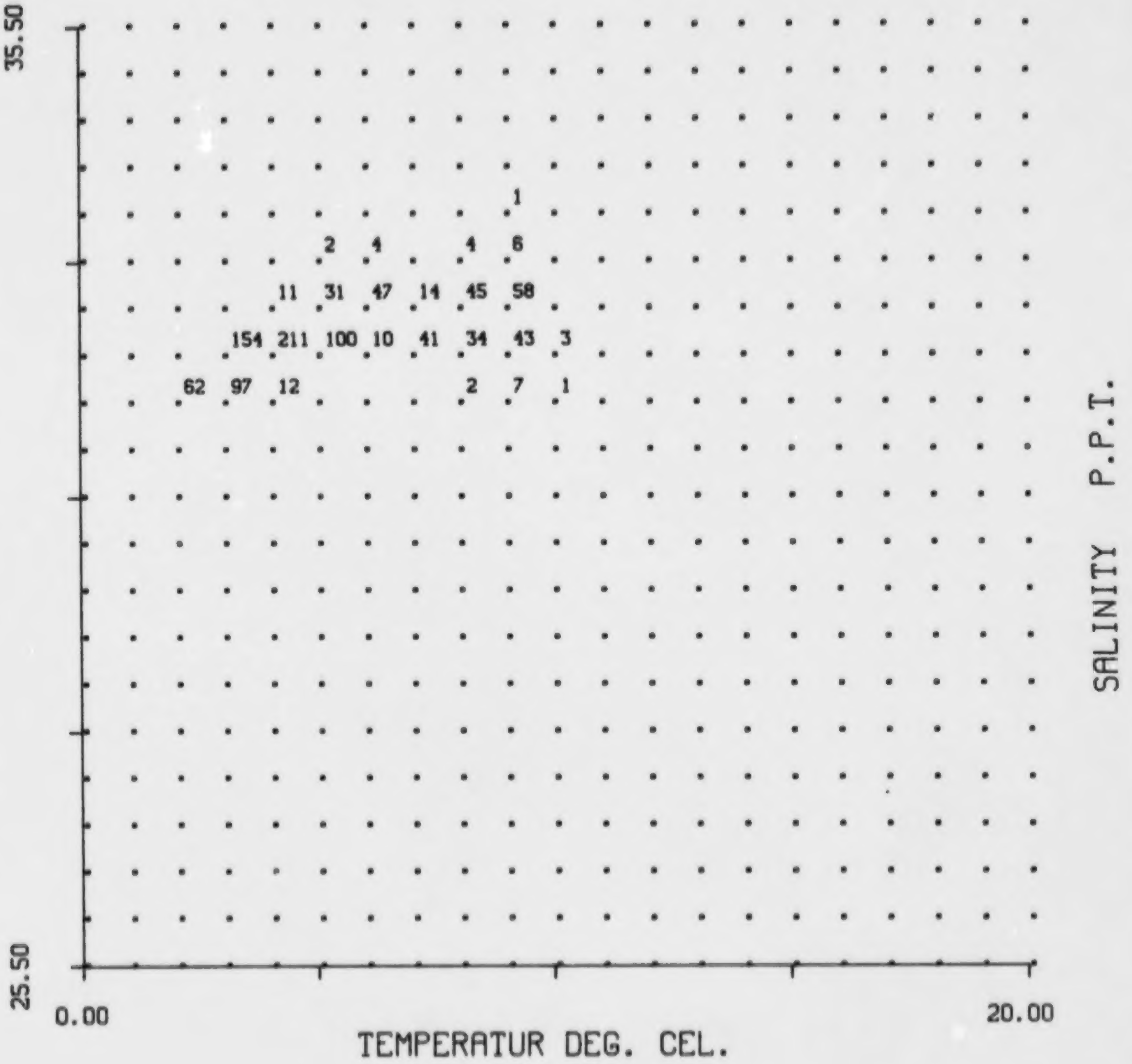

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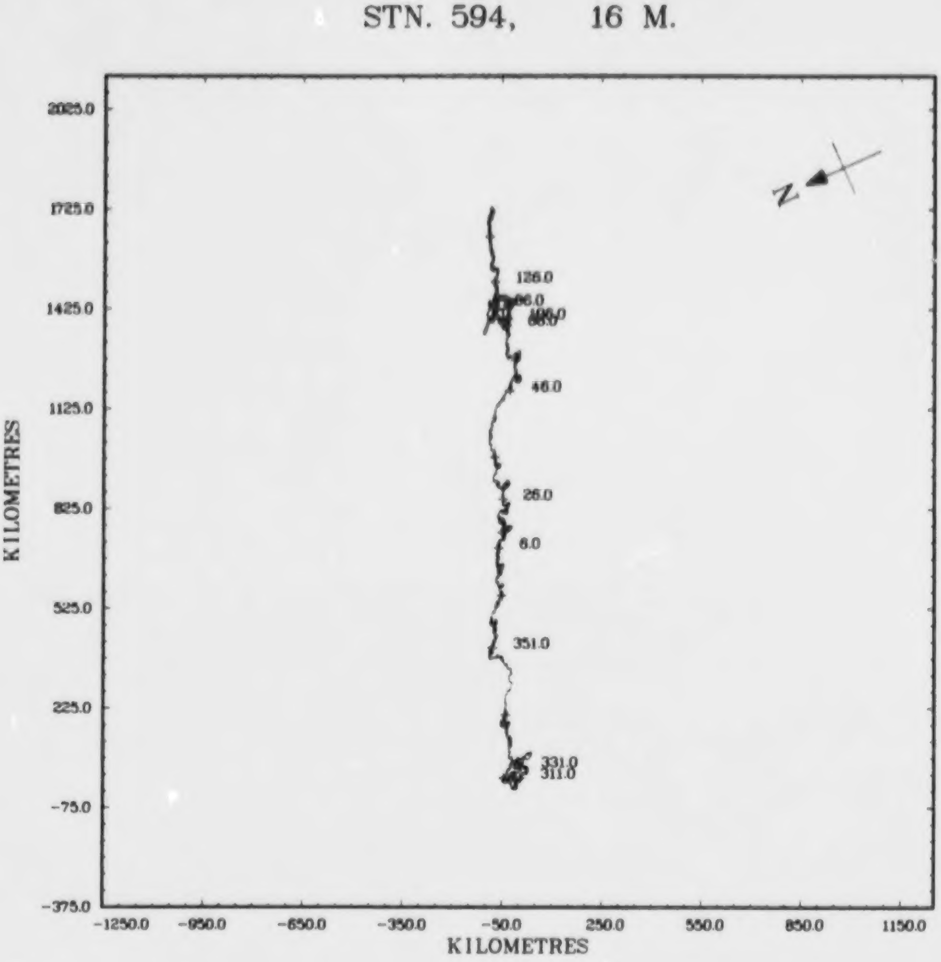

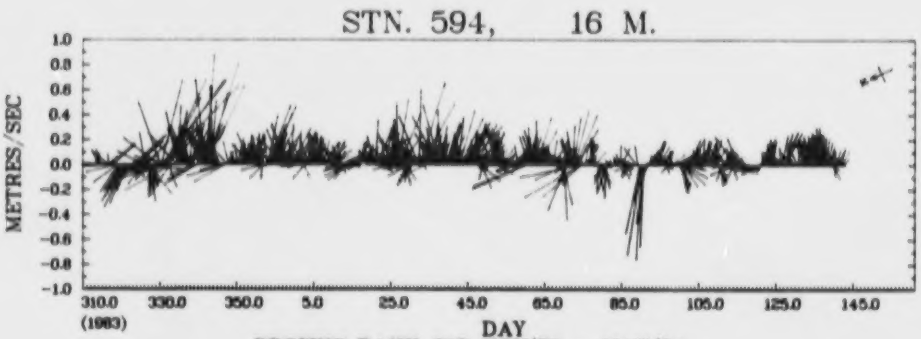

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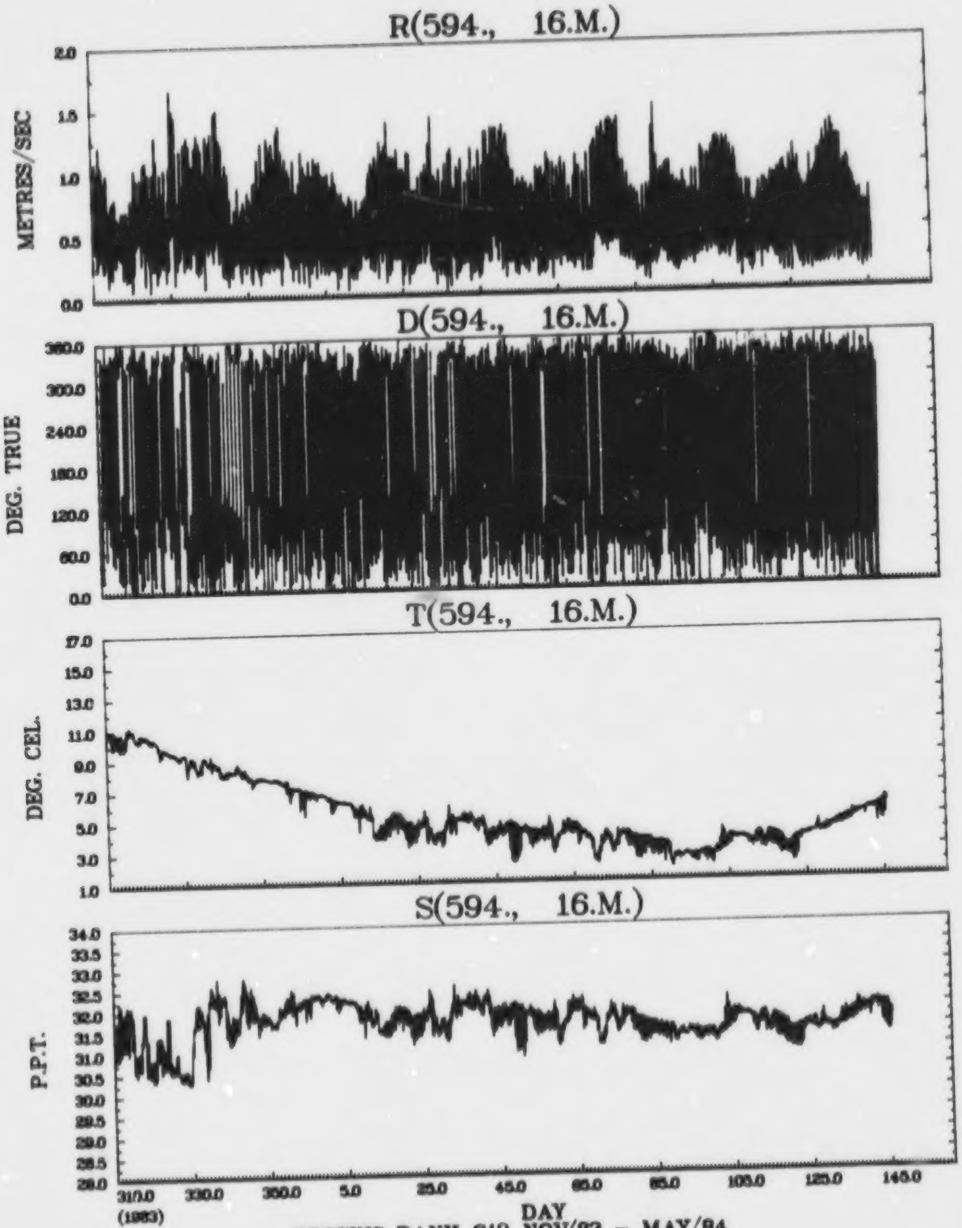

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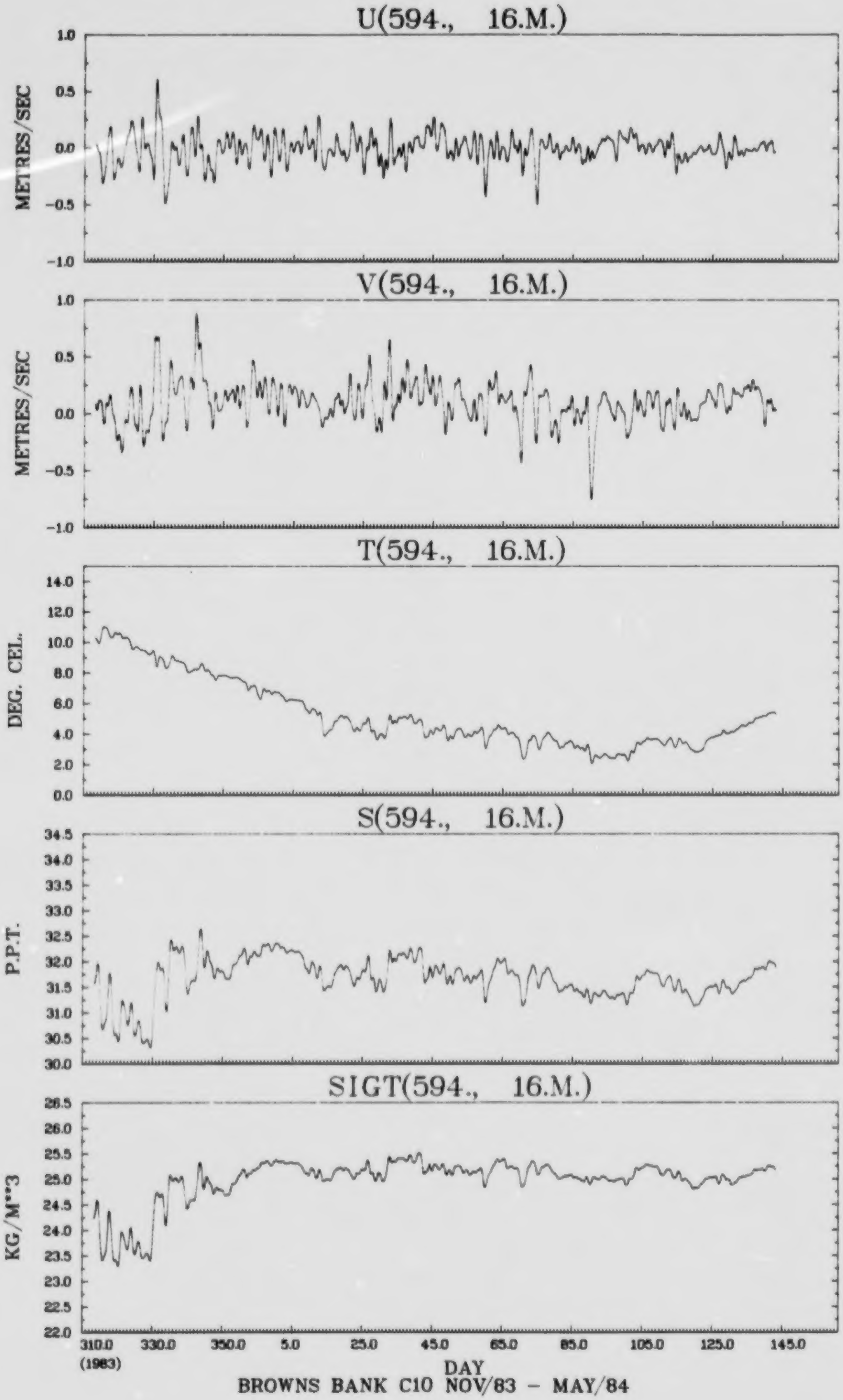

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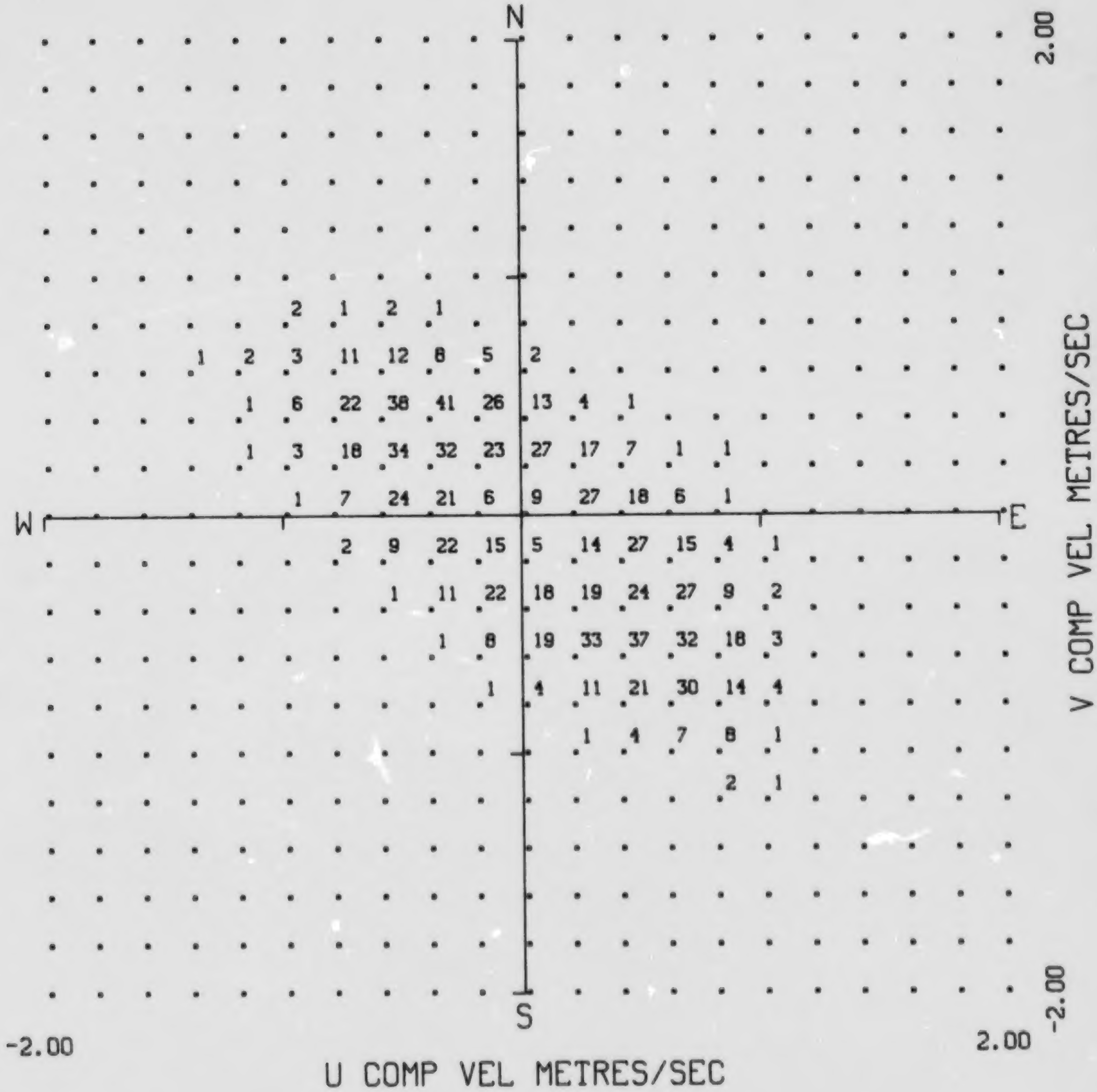

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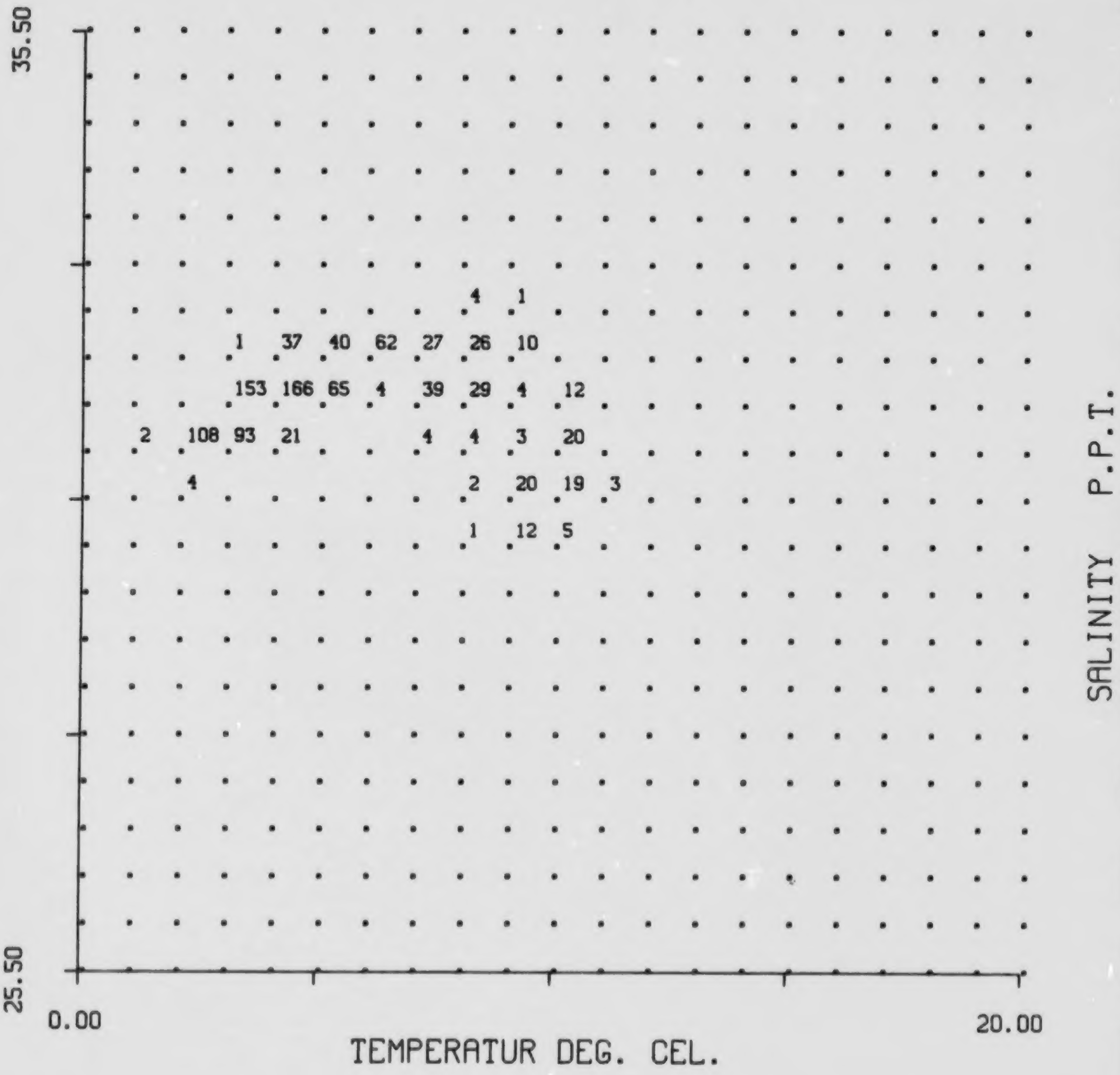

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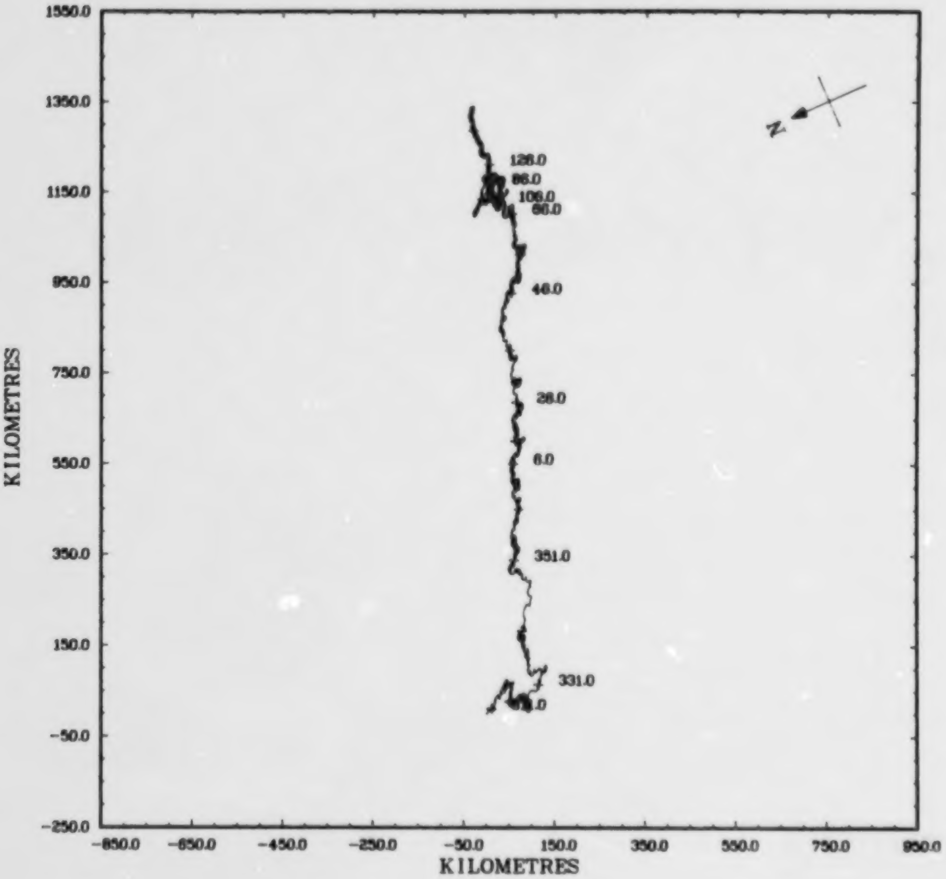
STN. 594, 31 M.



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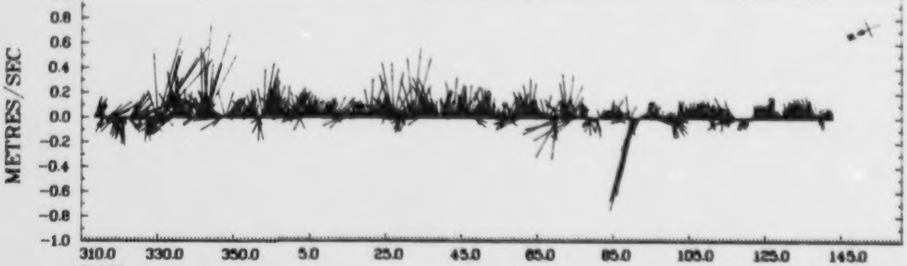
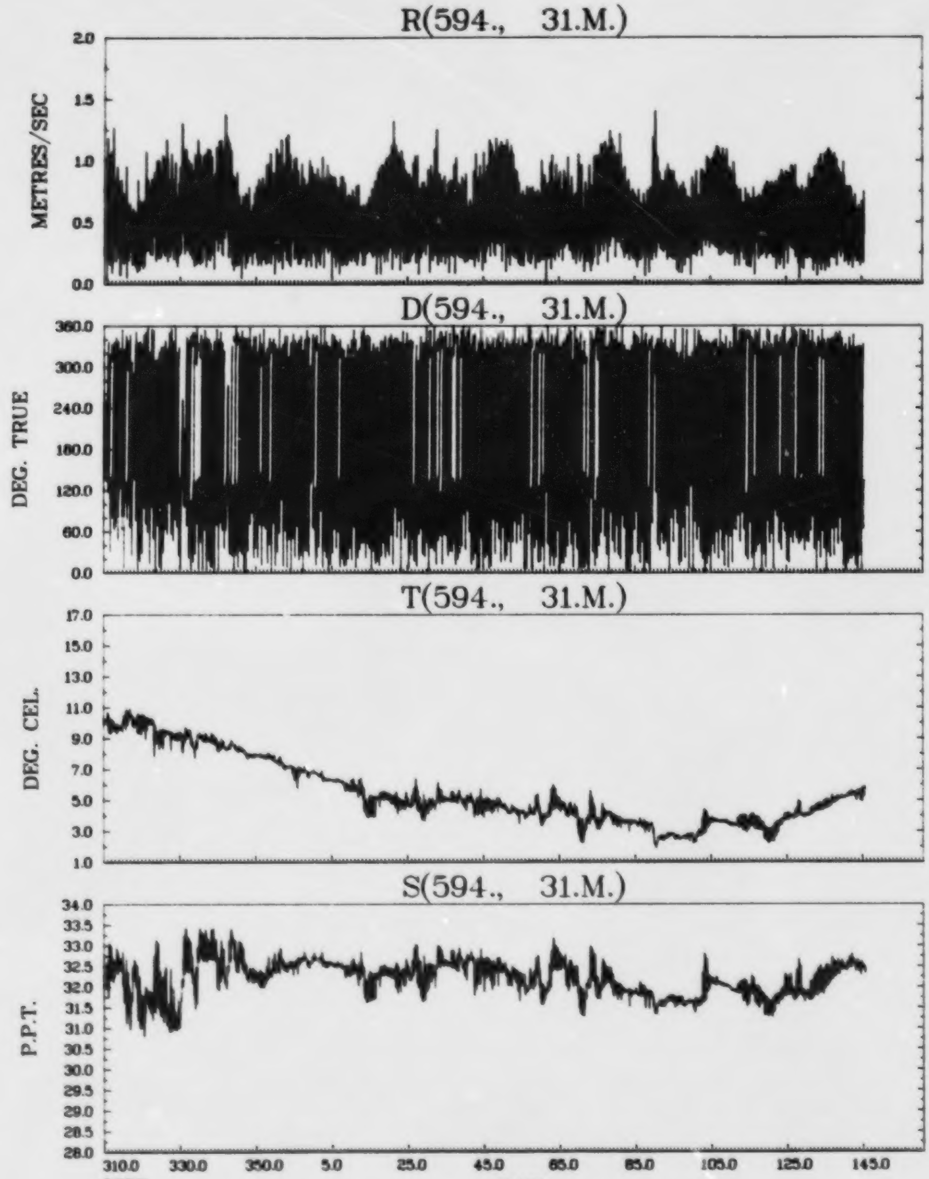


BROWNS BANK C10 NOV/83 – MAY/84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D(594., 31.M.)

T(594., 31.M.)

S(594., 31.M.)

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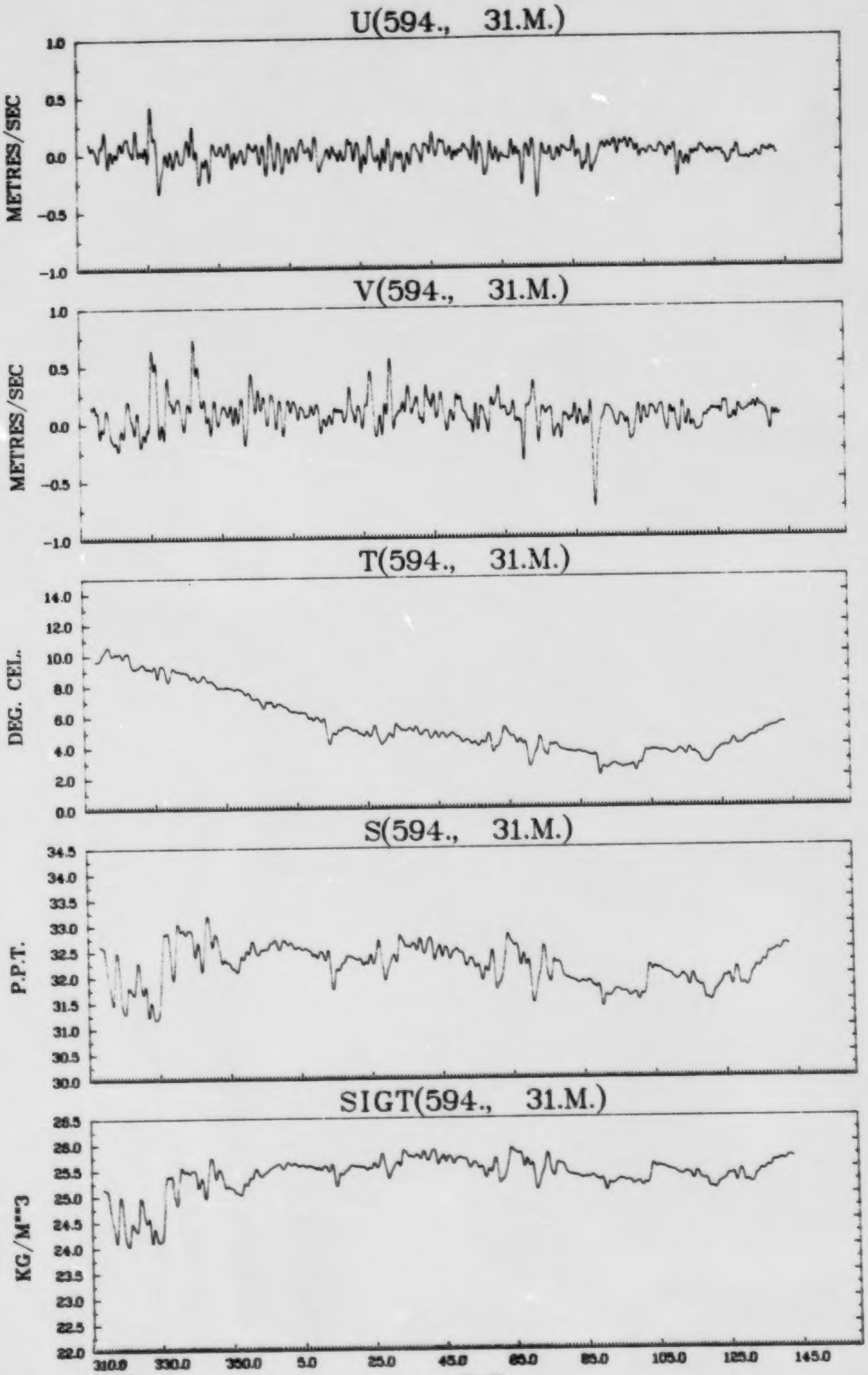

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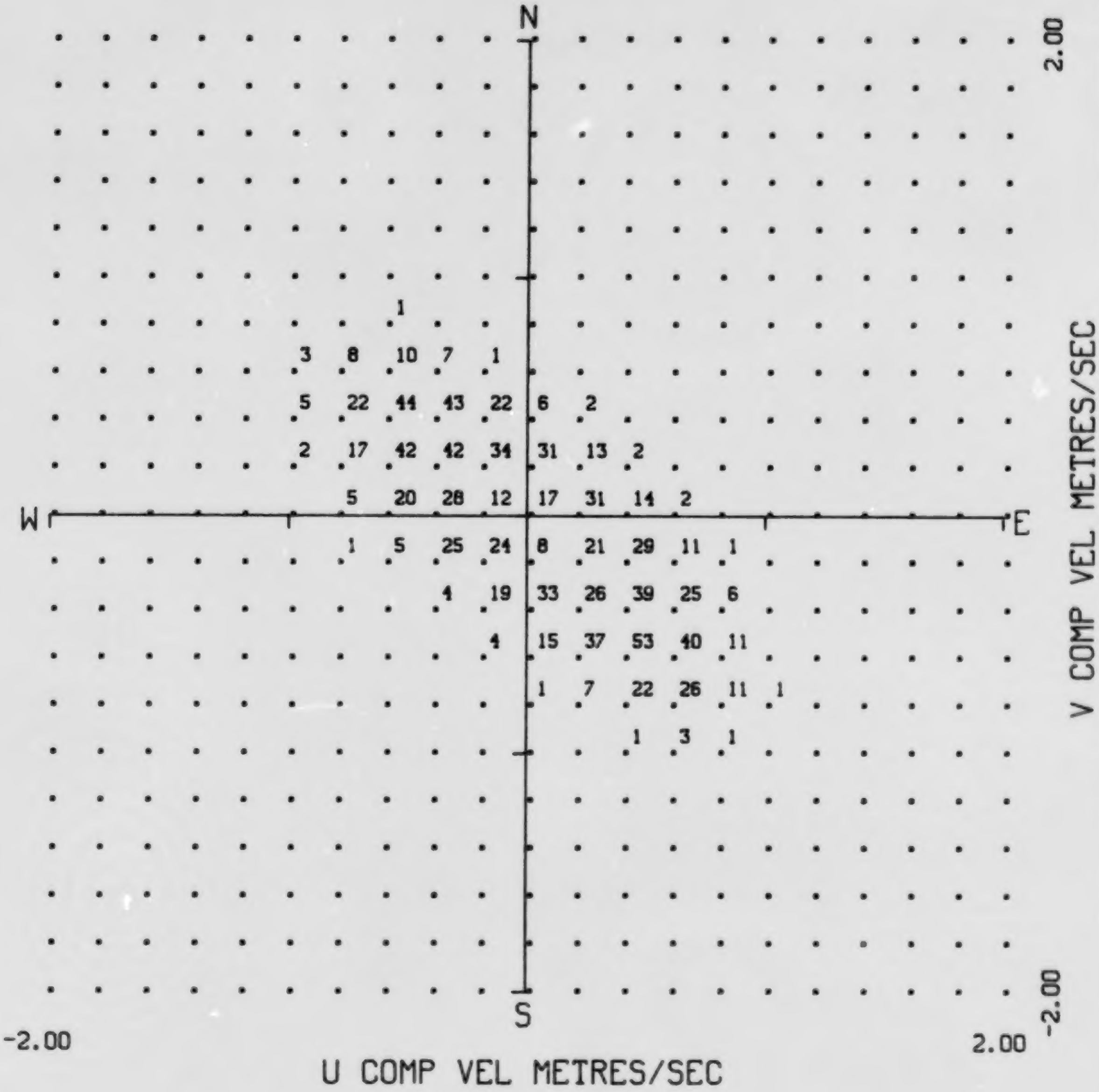

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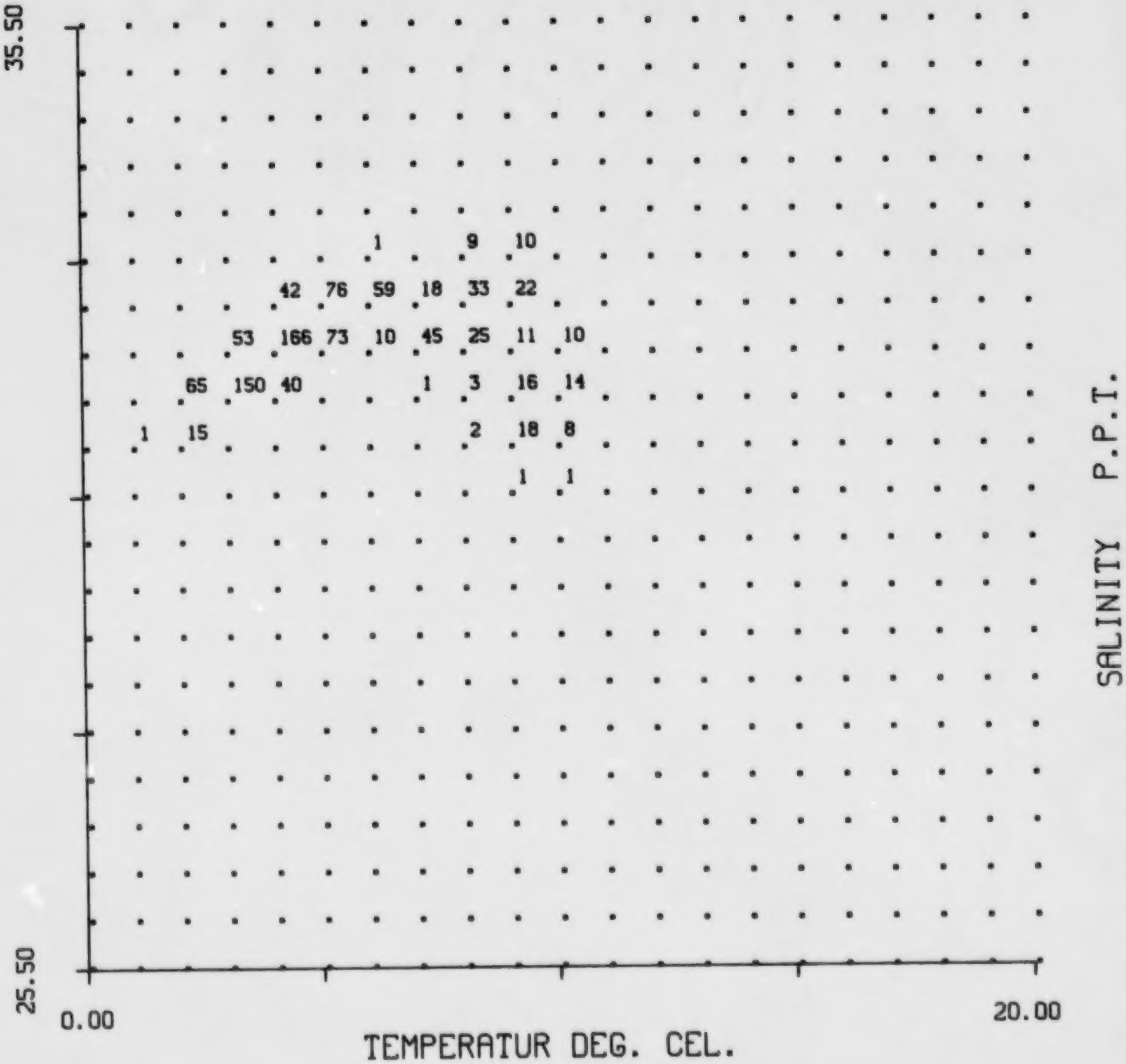

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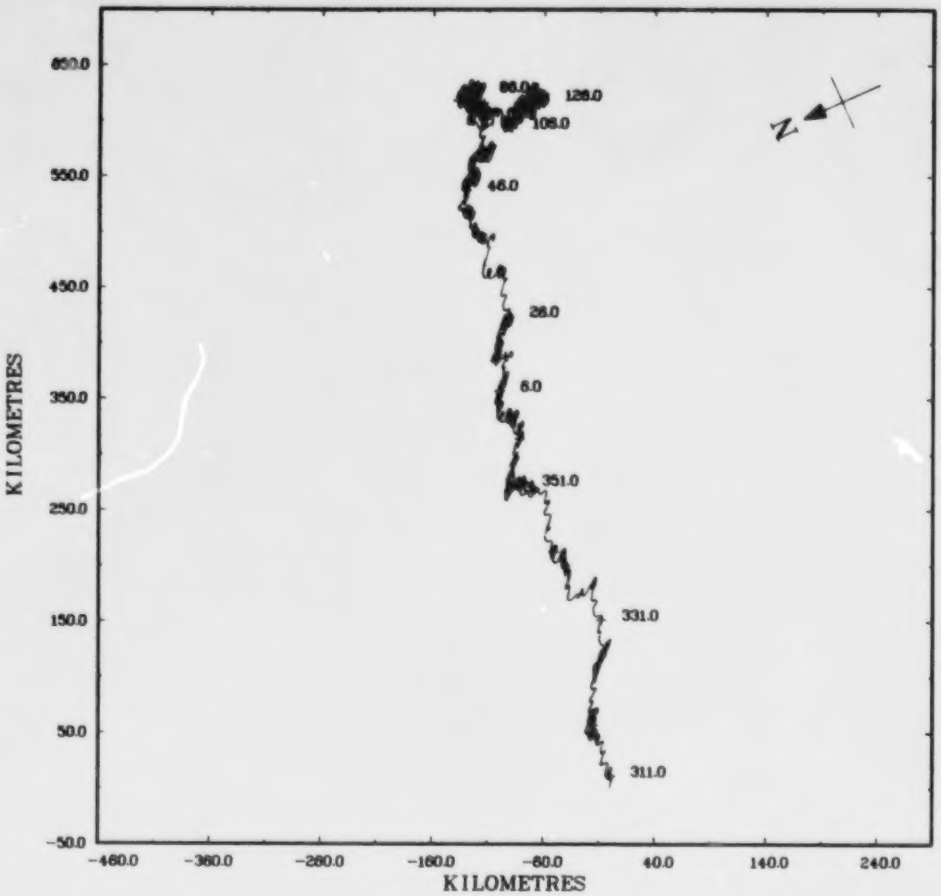

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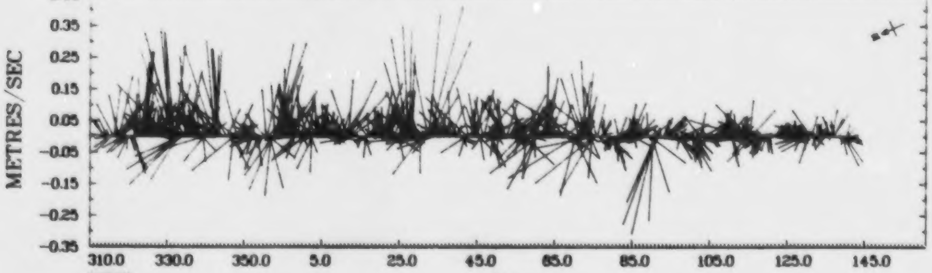

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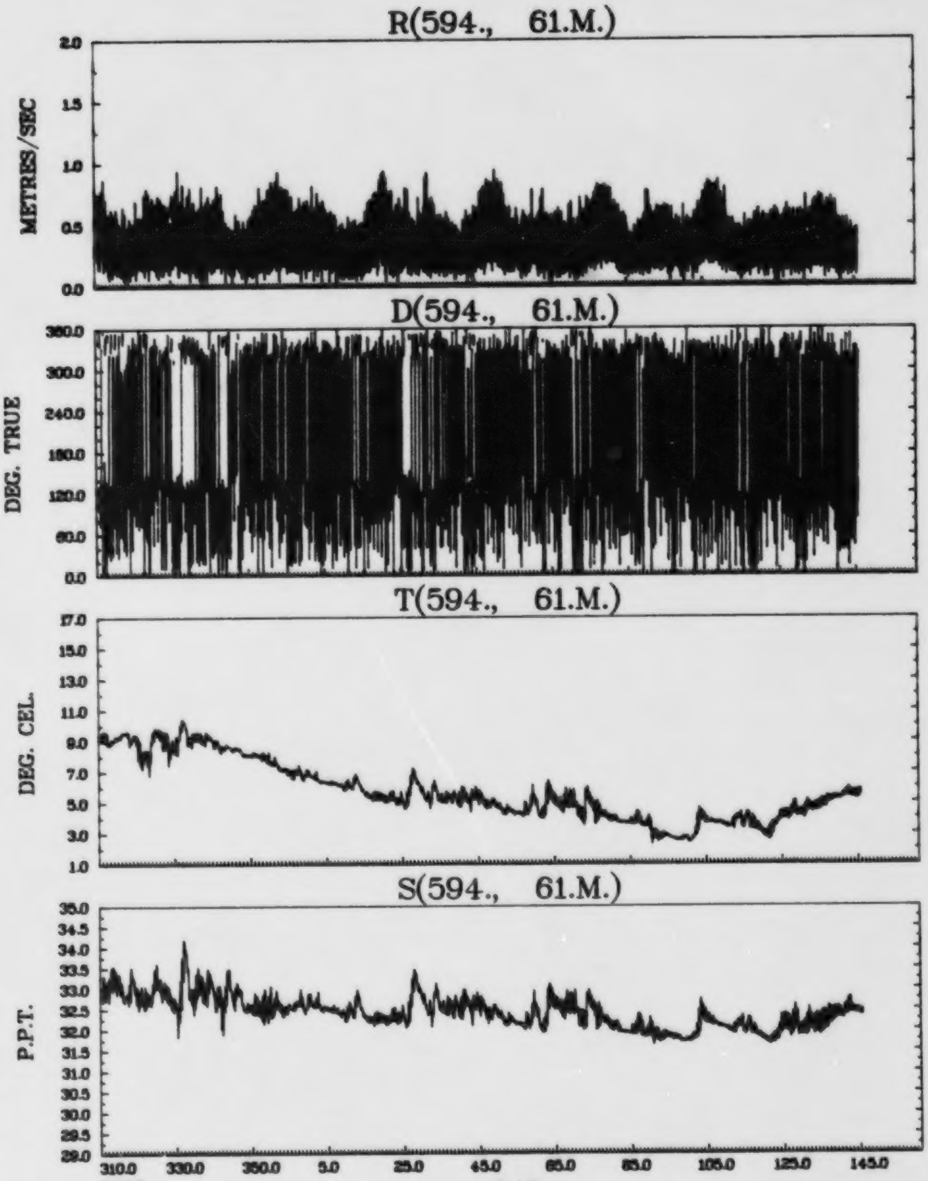

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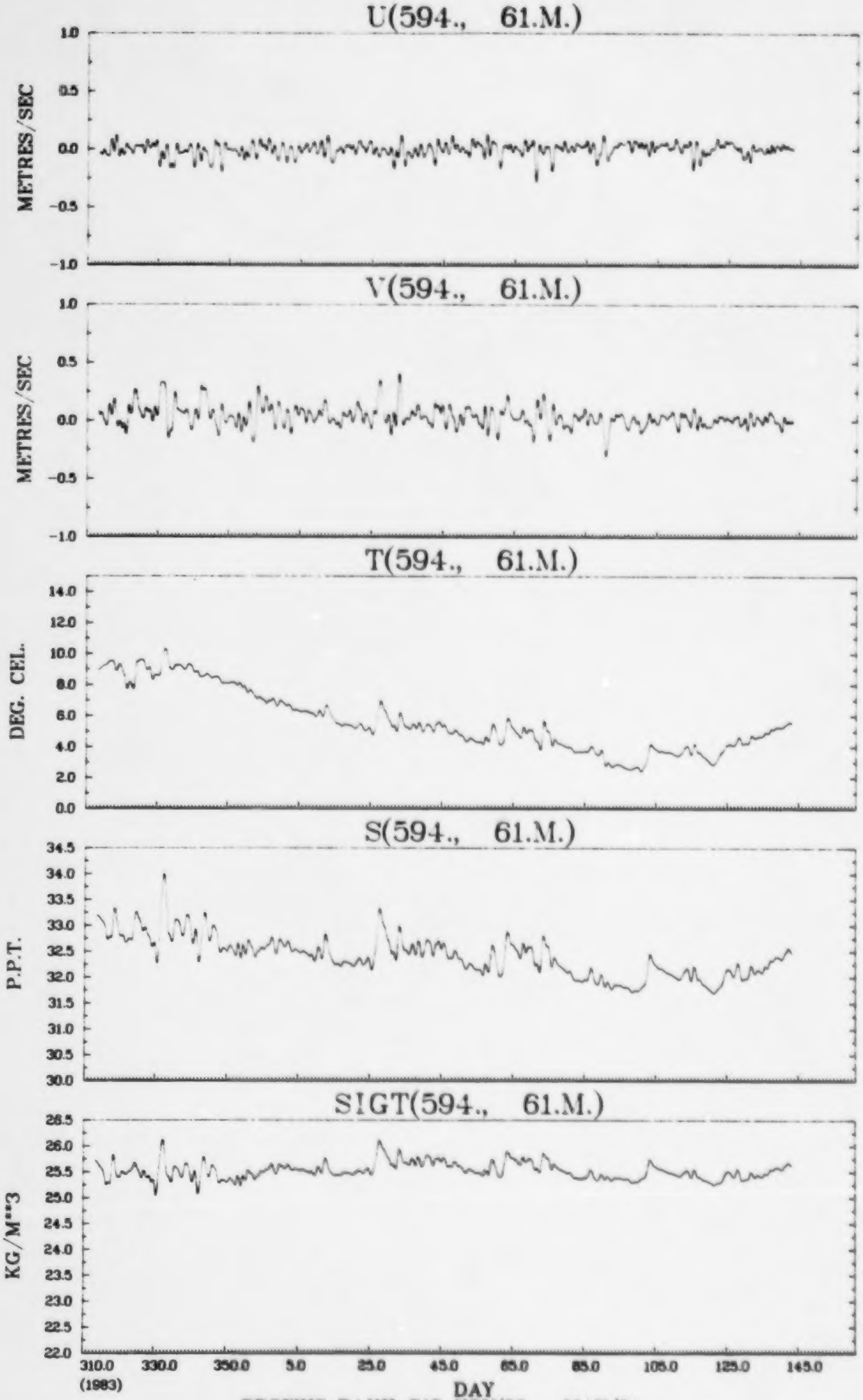

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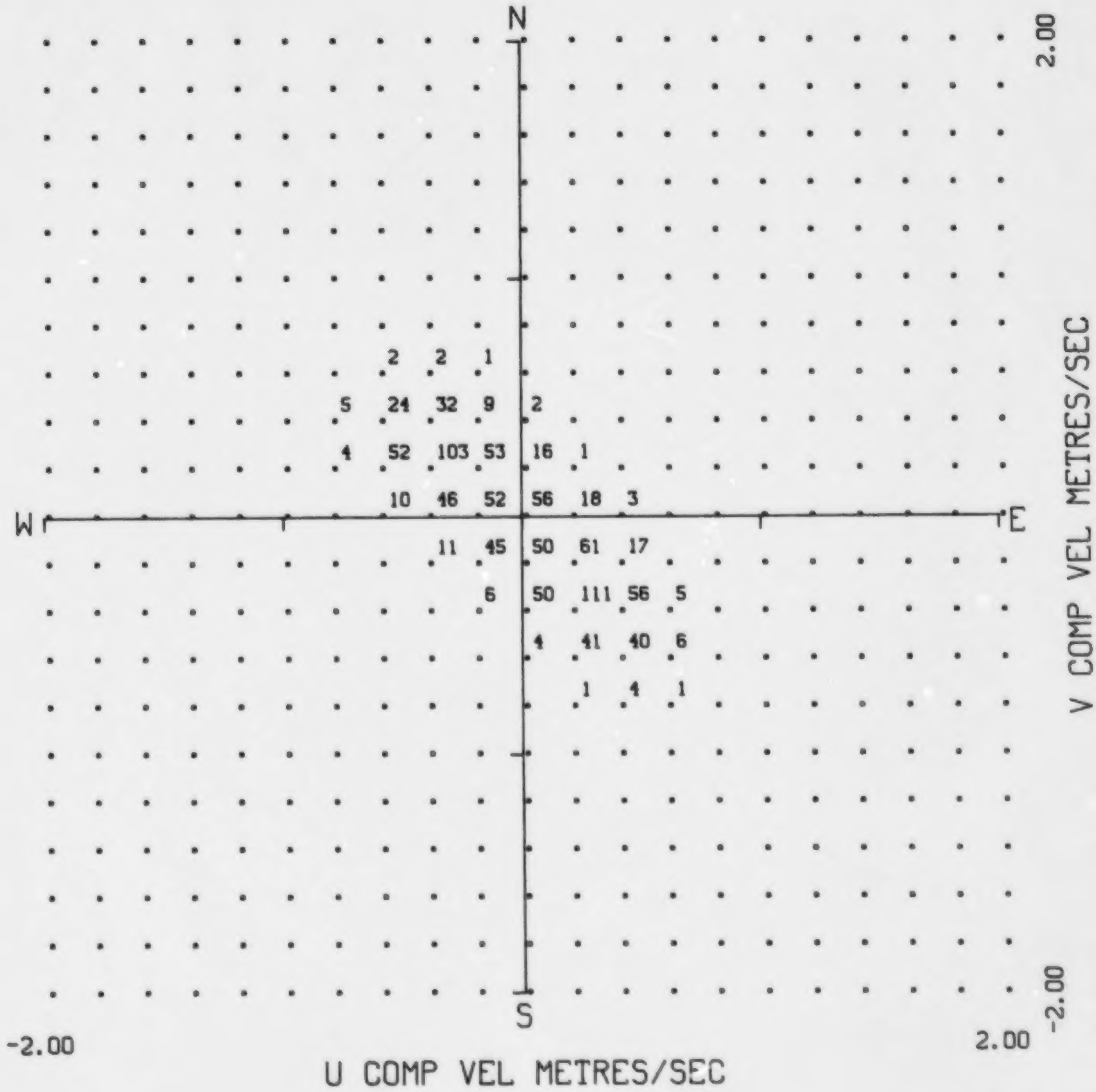

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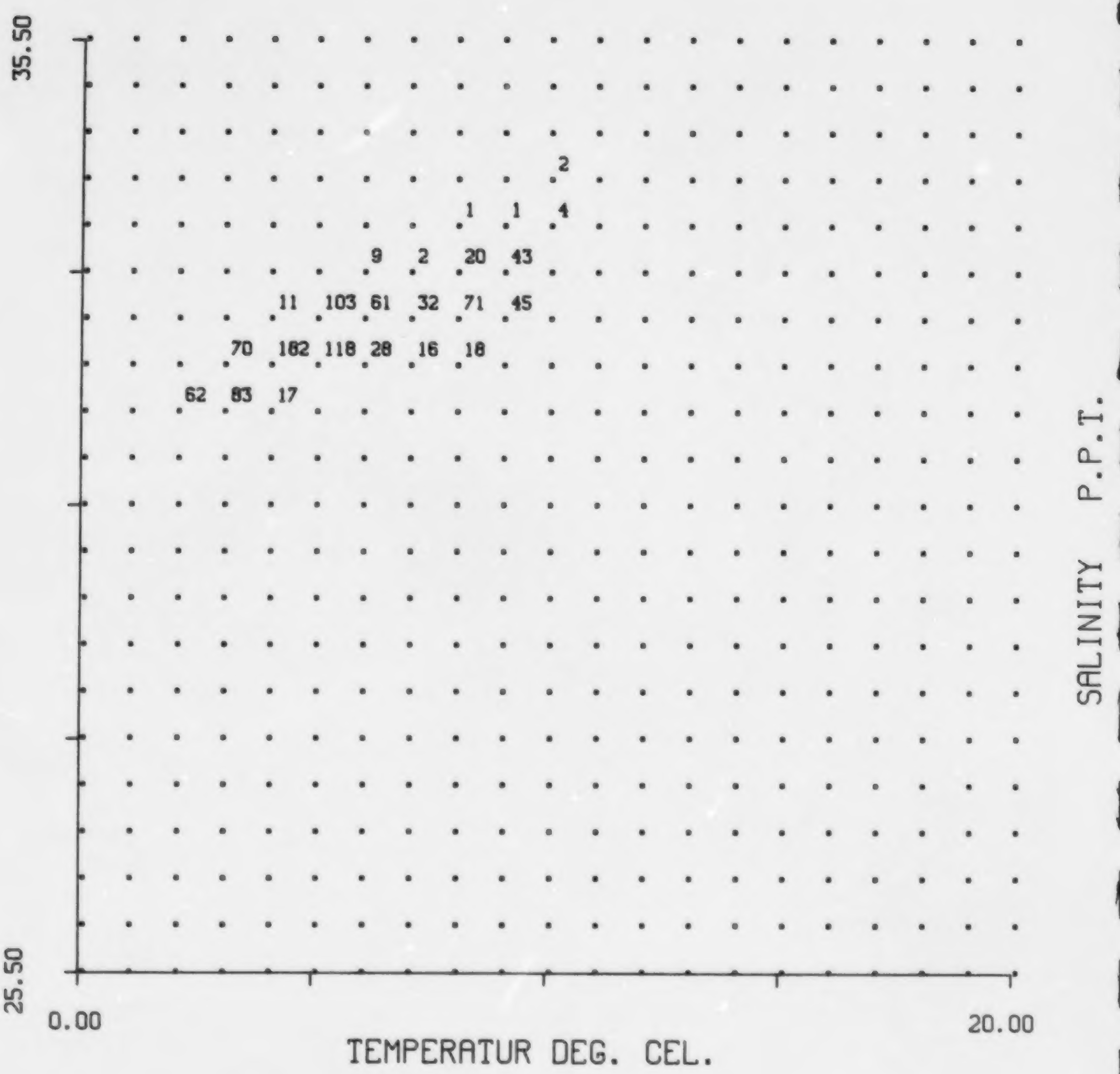

FREQUENCY DISTRIBUTION PLOT
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START TIME 6/11/1983 16: 0: .0 GMT
FREQUENCY UNIT 0.1%

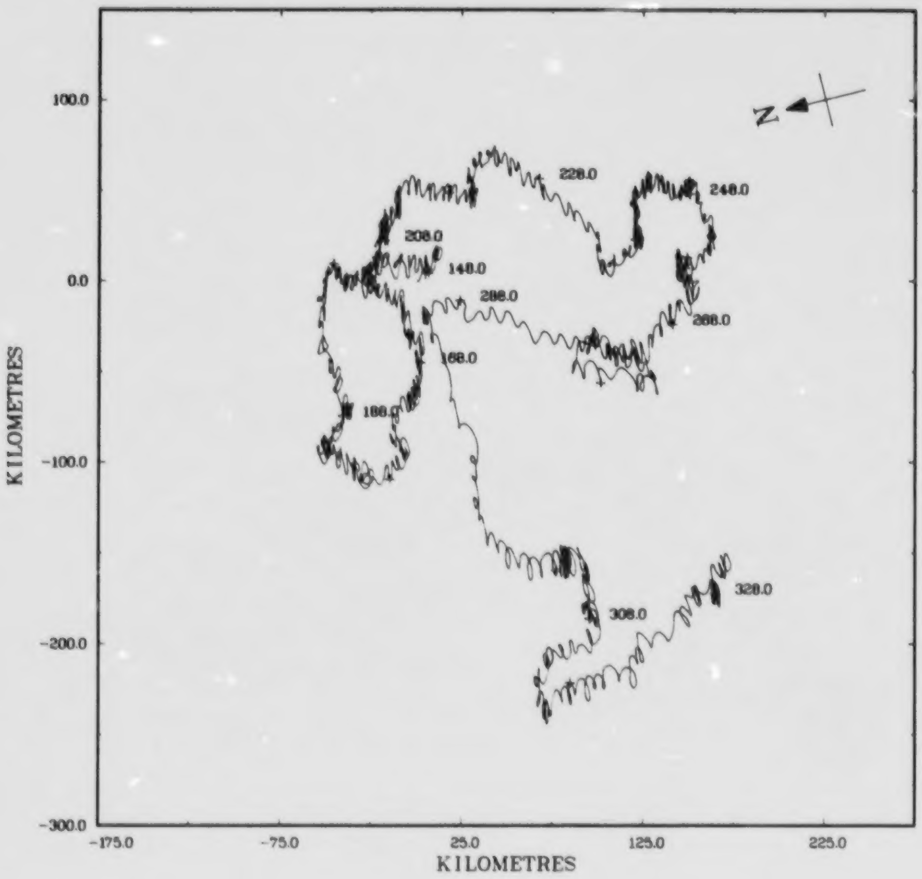
TABLE 12

MOORING SUMMARY CRUISE 84-008

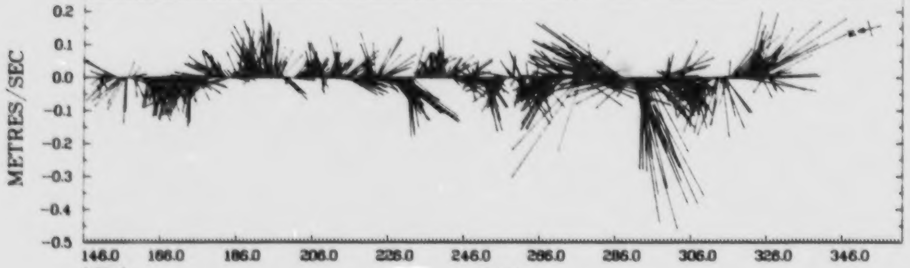
SITE/ STATION	DEPTH (M)	SOUNDING (M)	LATITUDE (NORTH)	LONGITUDE (WEST)	INST. NO.	TYPE*	START DATE	END DATE	COMMENTS
C2/621	10	105	43°02.87'	65°45.29'	3302	AAND	26/05/84	25/11/84	Instrument case and vane were covered with long hairy marine growth. Conductivity cell failed from day 256 to day 271, 1984.
	50	110	43°02.81'	65°45.14'	828	AAND	26/05/84	25/11/84	Small amount of slimy marine growth.
	100	110	43°02.81'	65°45.14'	1951	AAND	26/05/84	25/11/84	Small amount of slimy marine growth.
	112	112	43°02.91'	65°45.42'	108	ATG	26/05/84	25/11/84	There was no temperature sensor on this gauge.
C10/622	14	69	42°48.45'	66°02.27'	4350	AAND	25/05/84	16/11/84	Instrument case covered with long hairy marine growth. Speed channel failed from day 153 to day 175, 1984.
	28	68	42°48.52'	66°02.42'	3306	AAND	25/05/84	16/11/84	Large amount of marine growth on case and vane.
	58	68	42°48.52'	66°02.42'	3583	AAND	25/05/84	16/11/84	Moderate amount of marine growth.

* AAND = AANDERAA CURRENT METER, ATG = AANDERAA TIDE GAUGE

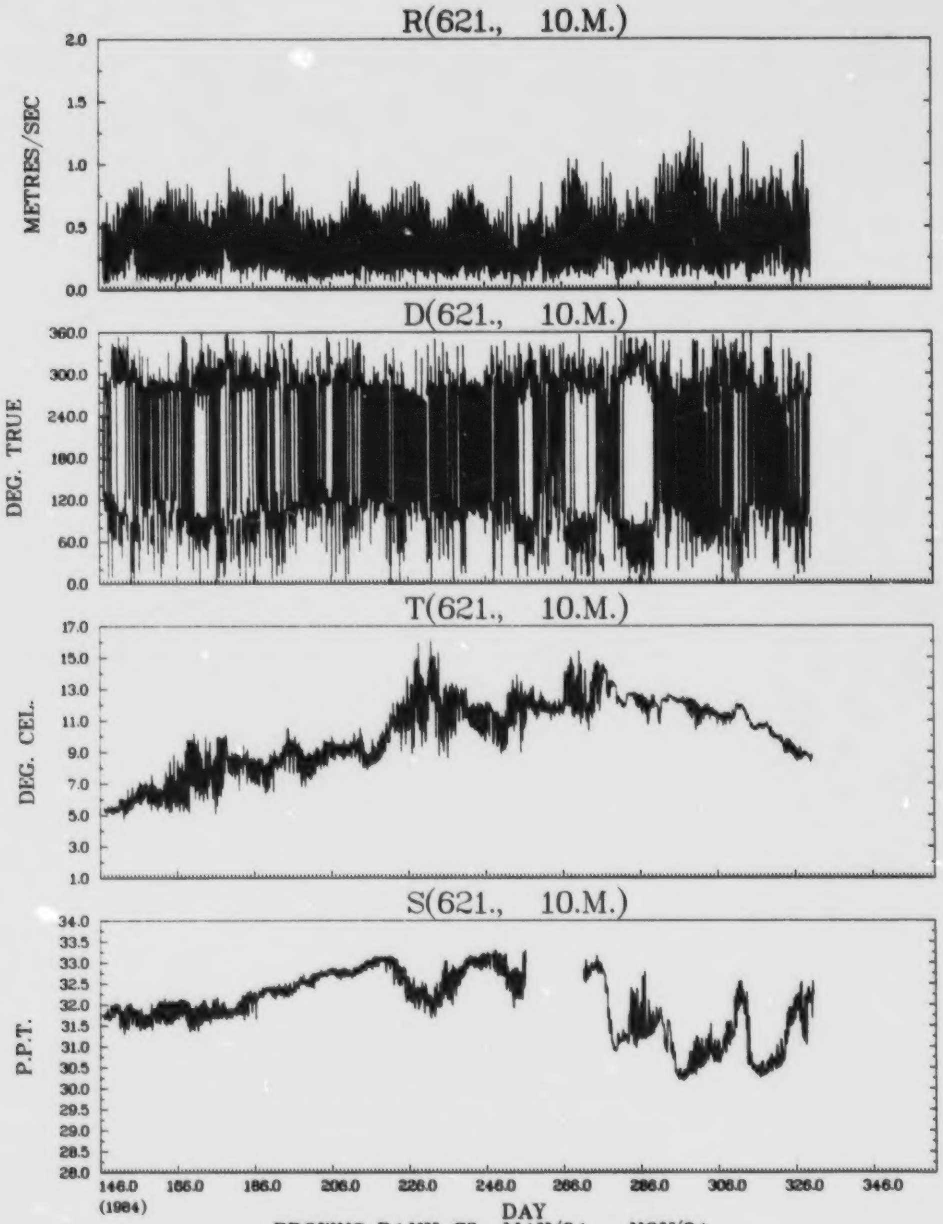
STN. 621, 10 M.



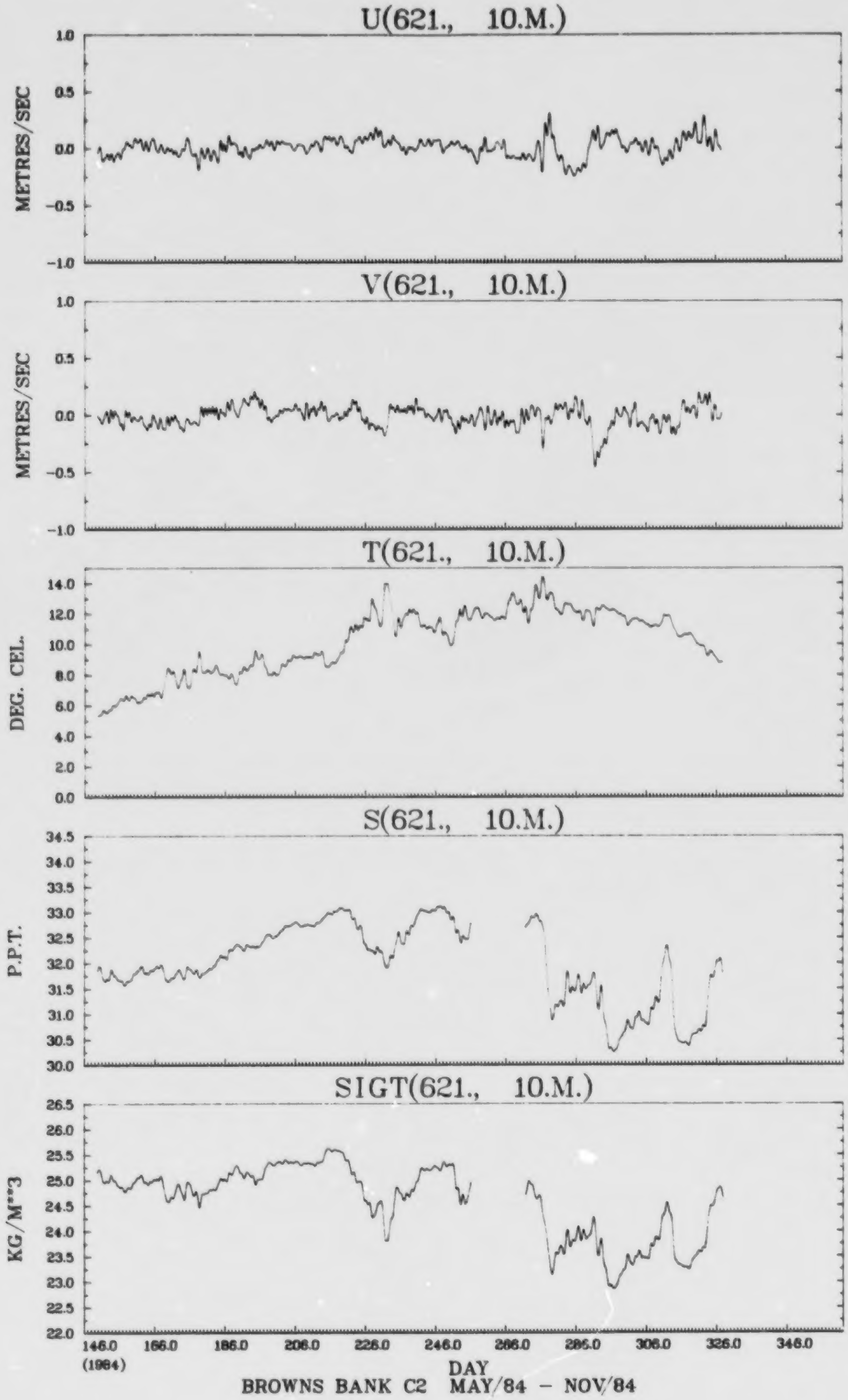
STN. 621, 10 M.



BROWNS BANK C2 MAY/84 - NOV/84



BROWNS BANK C2 MAY/84 - NOV/84



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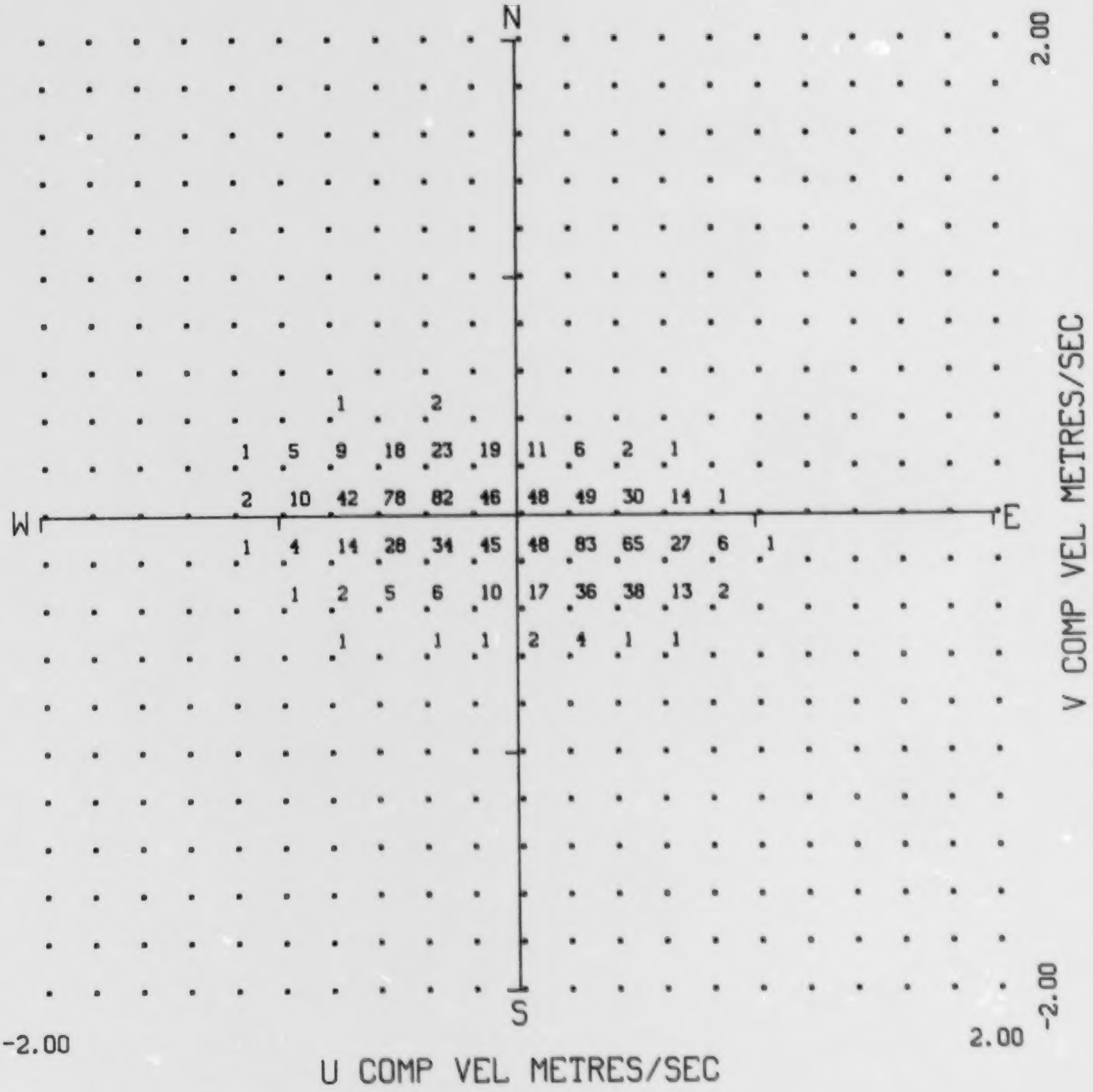

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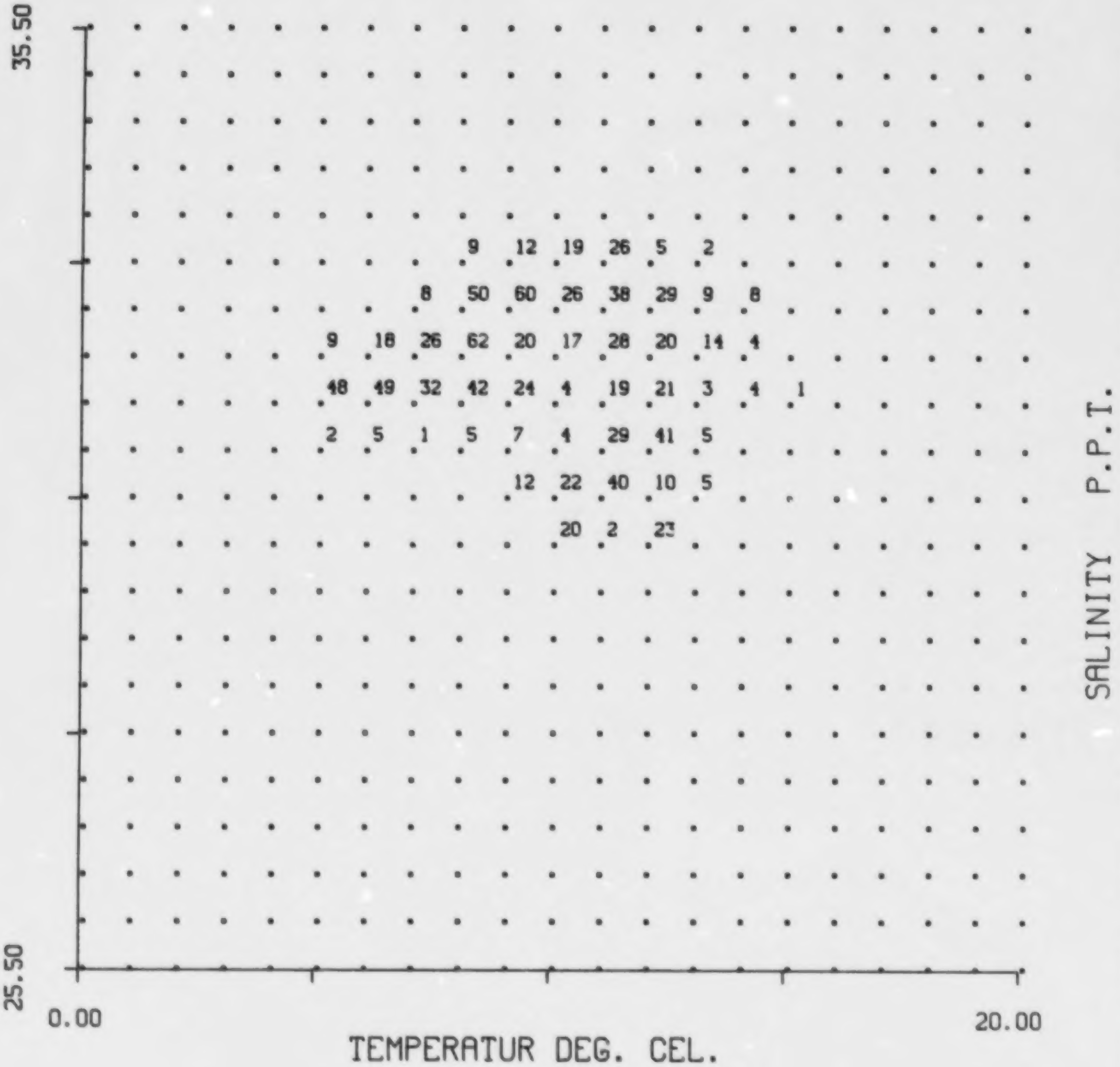

FREQUENCY DISTRIBUTION PLOT
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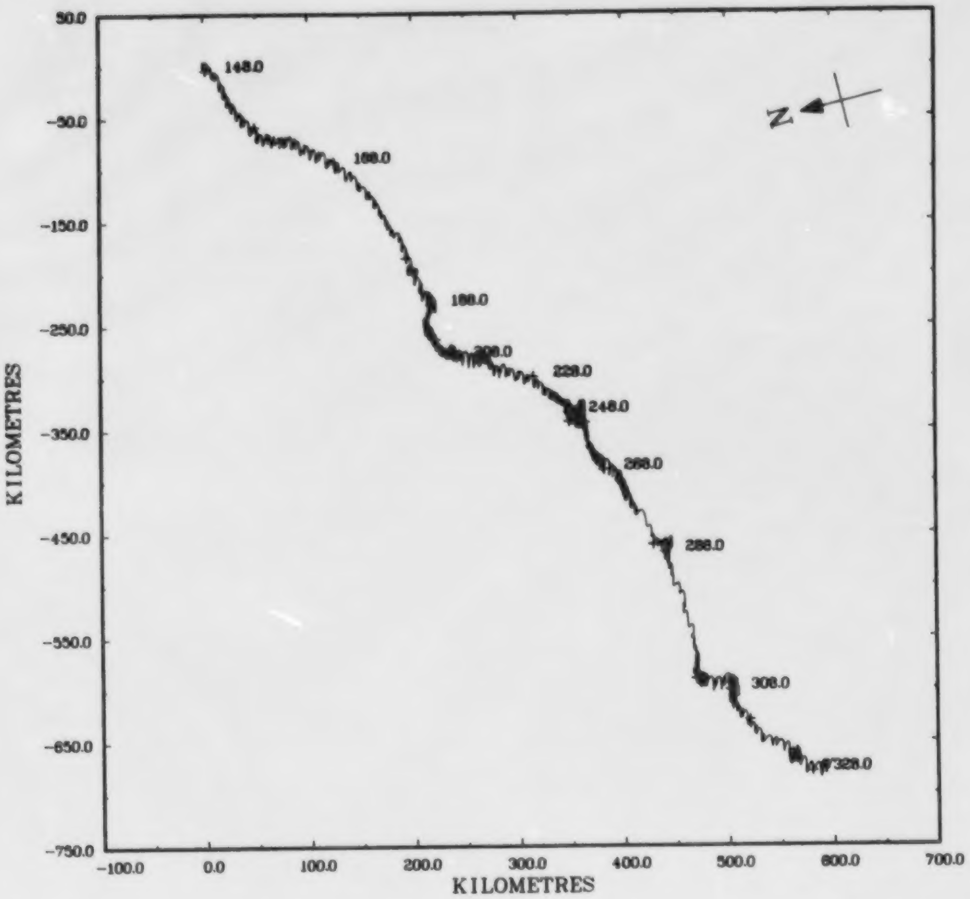
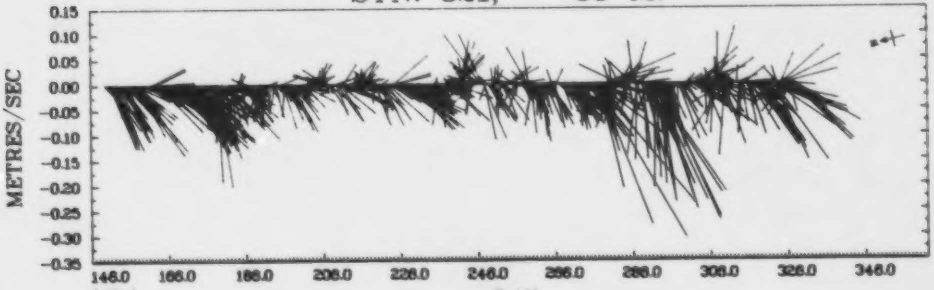
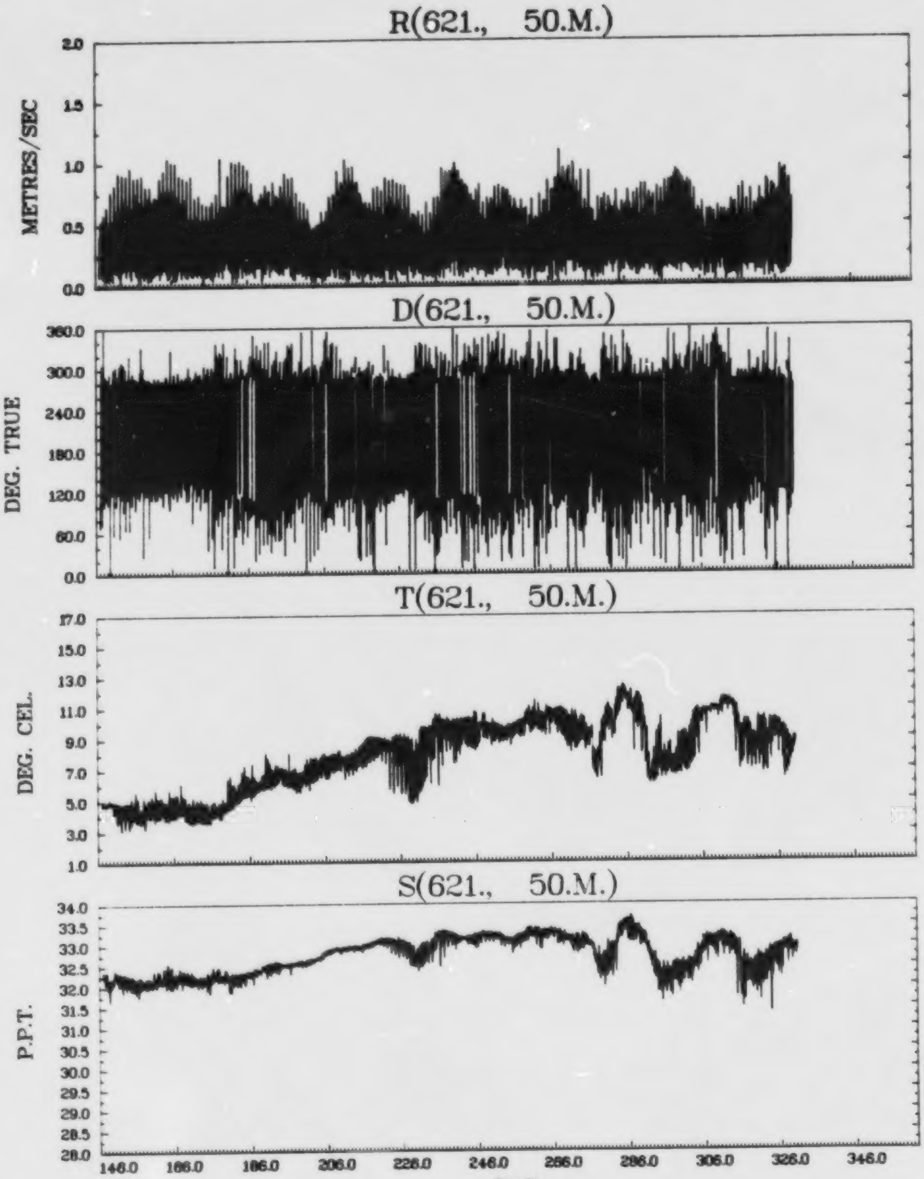
STN. 621, 50 M.



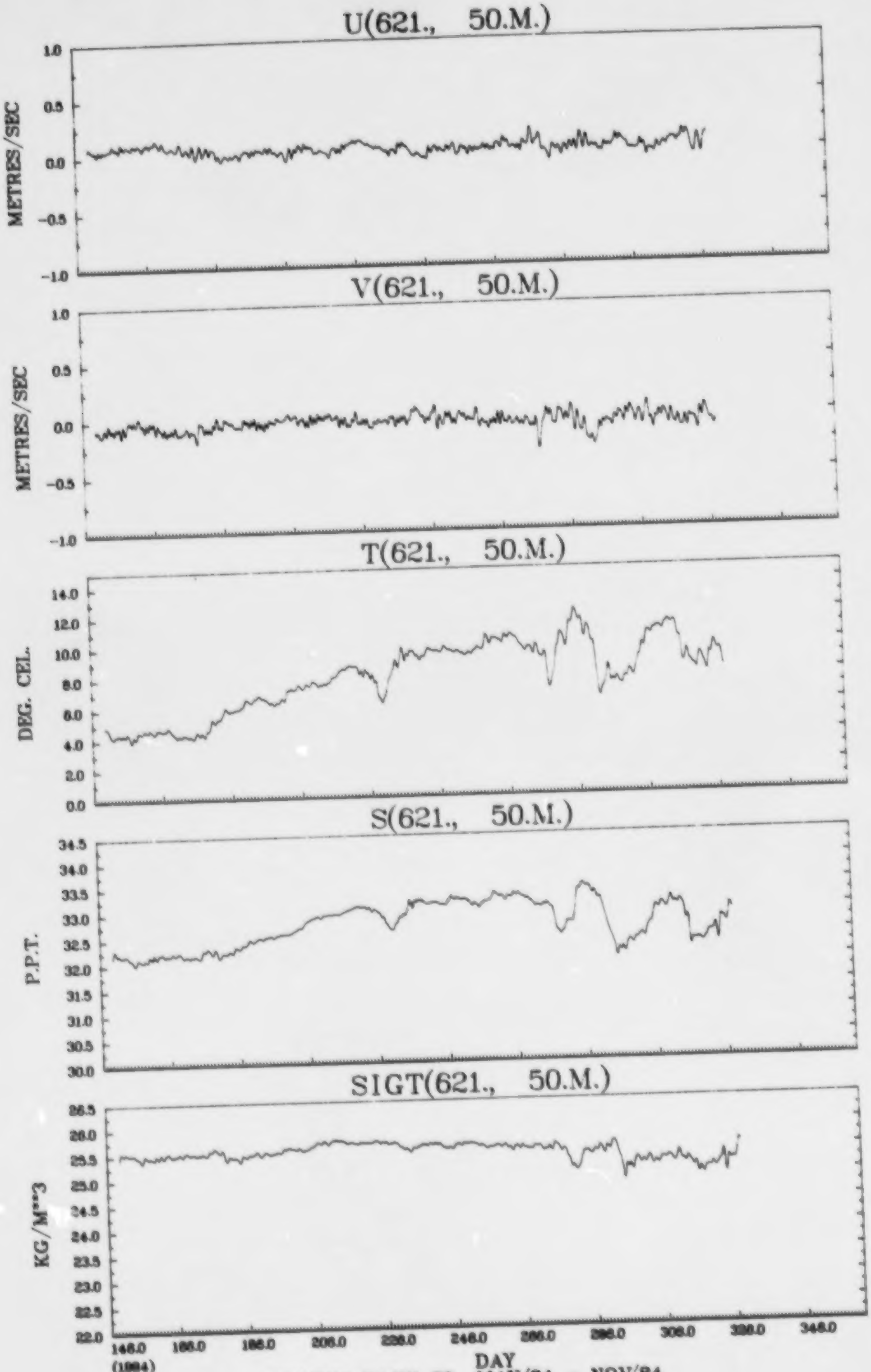
STN. 621, 50 M.



BROWNS BANK C2 MAY/84 - NOV/84



BROWNS BANK C2 MAY/84 - NOV/84



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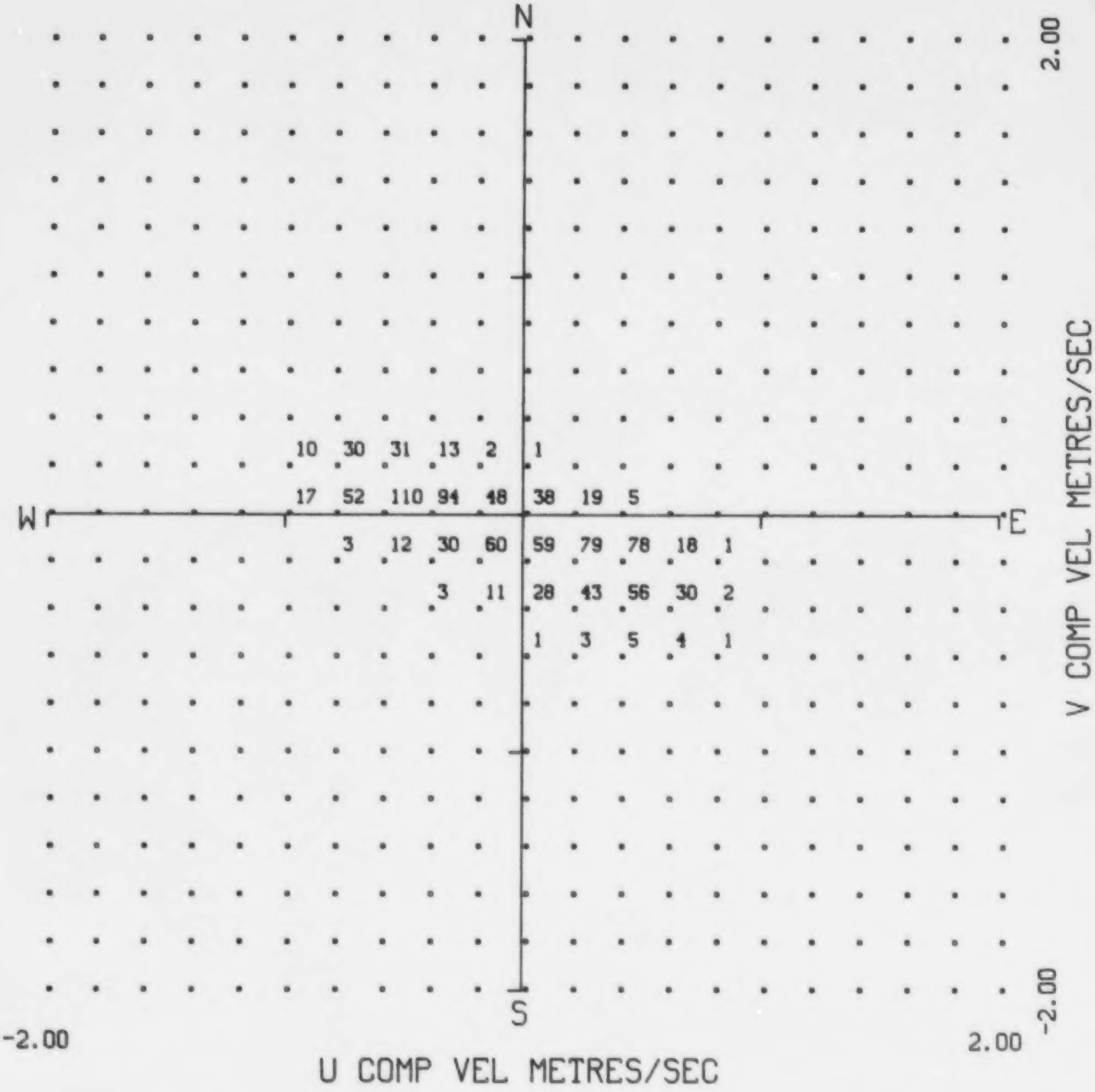

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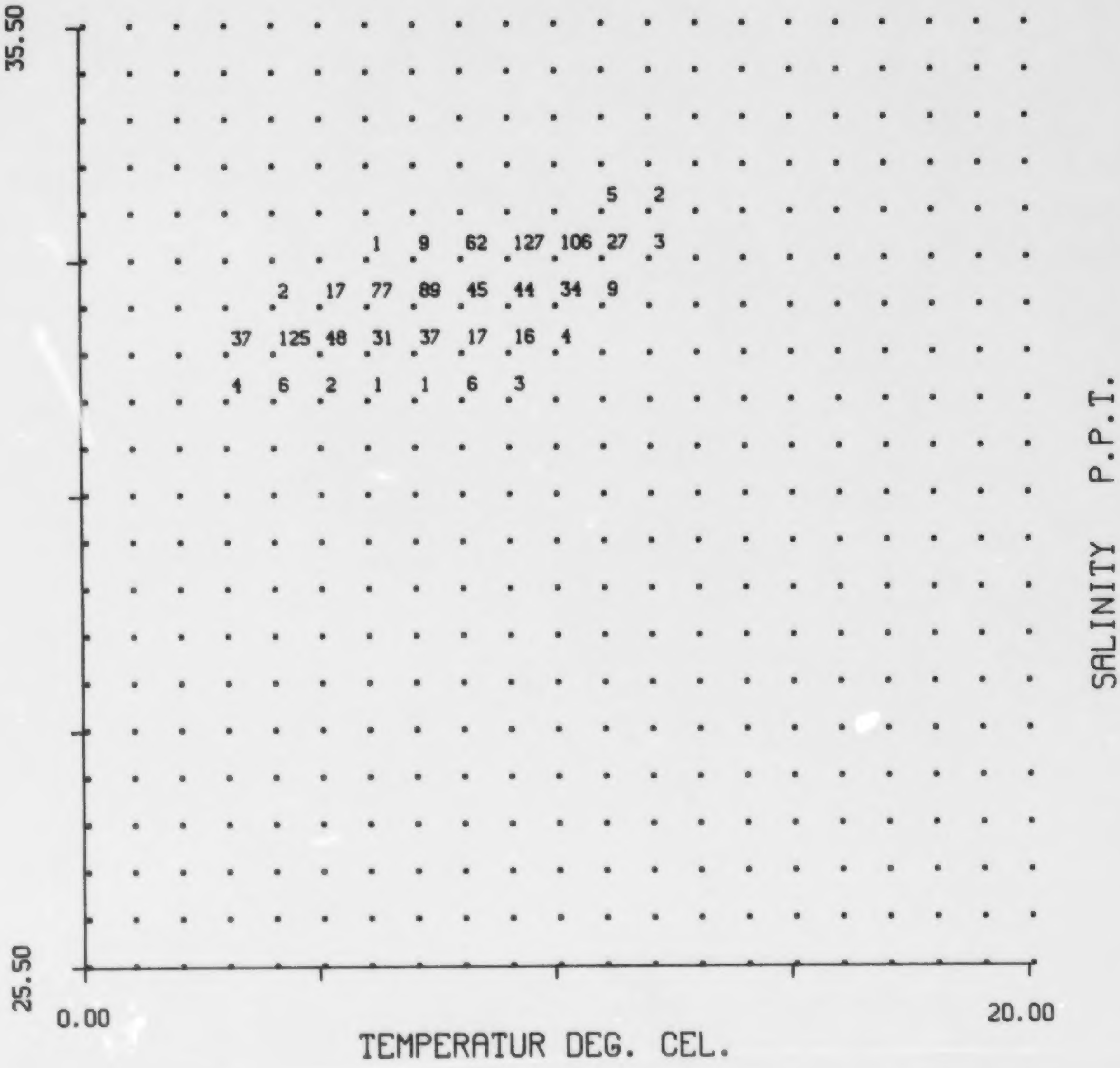

FREQUENCY DISTRIBUTION PLOT
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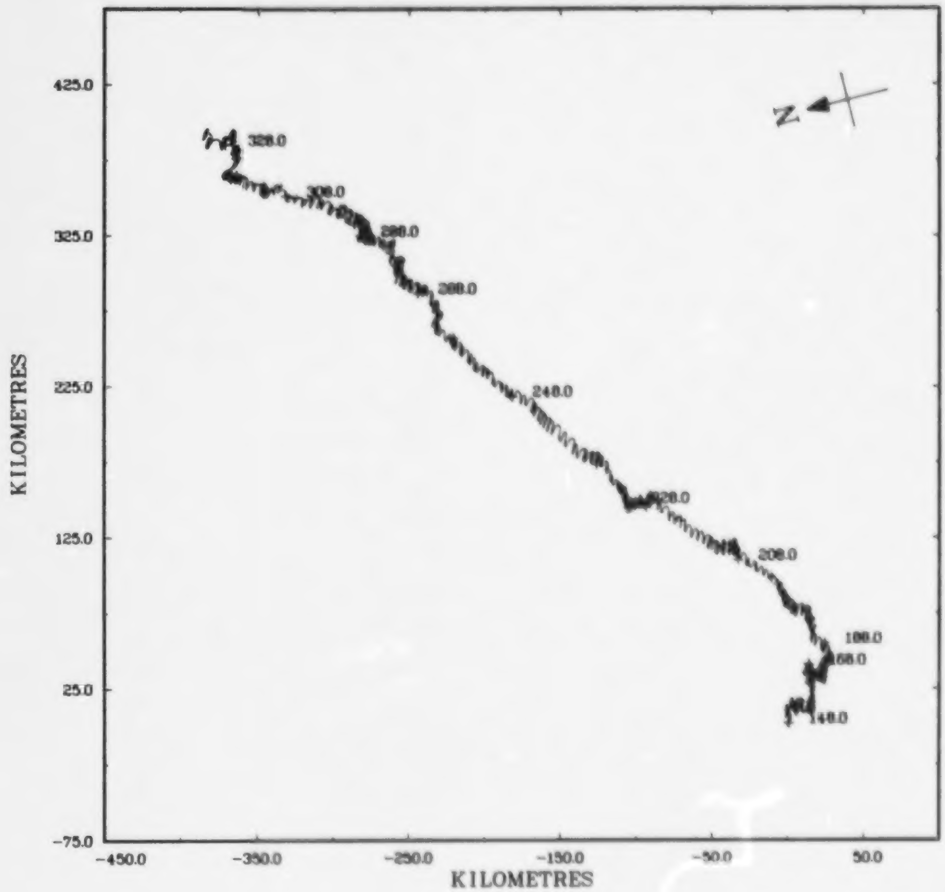
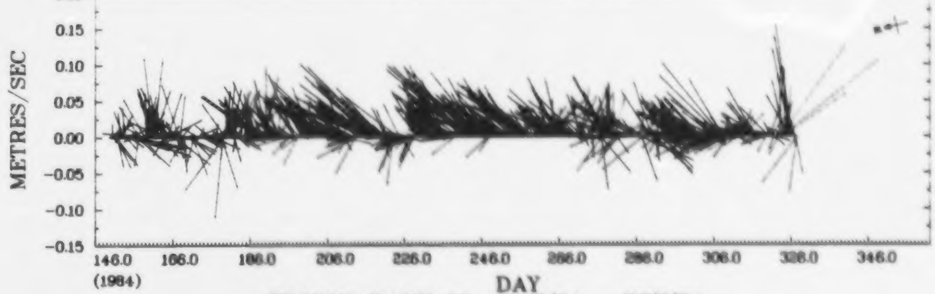
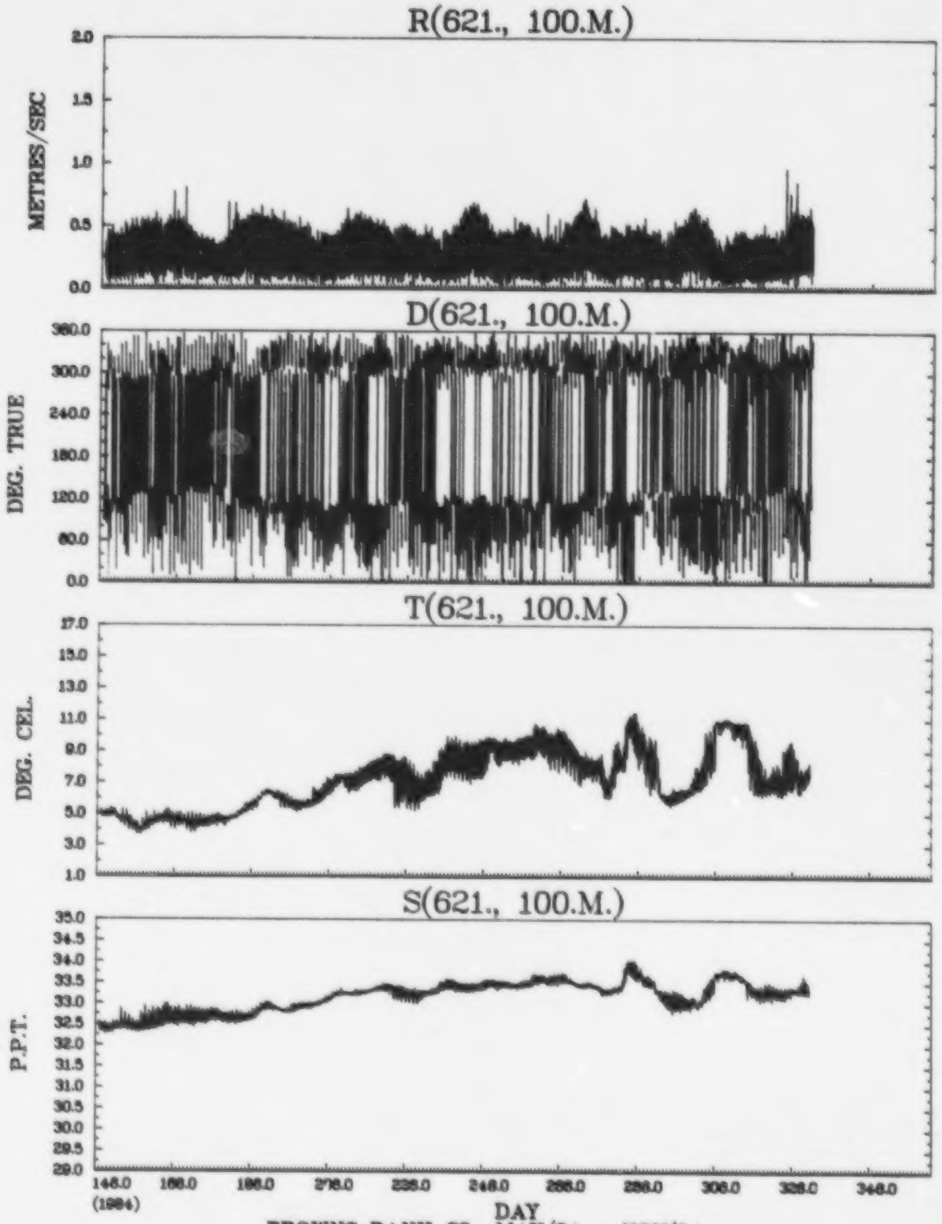


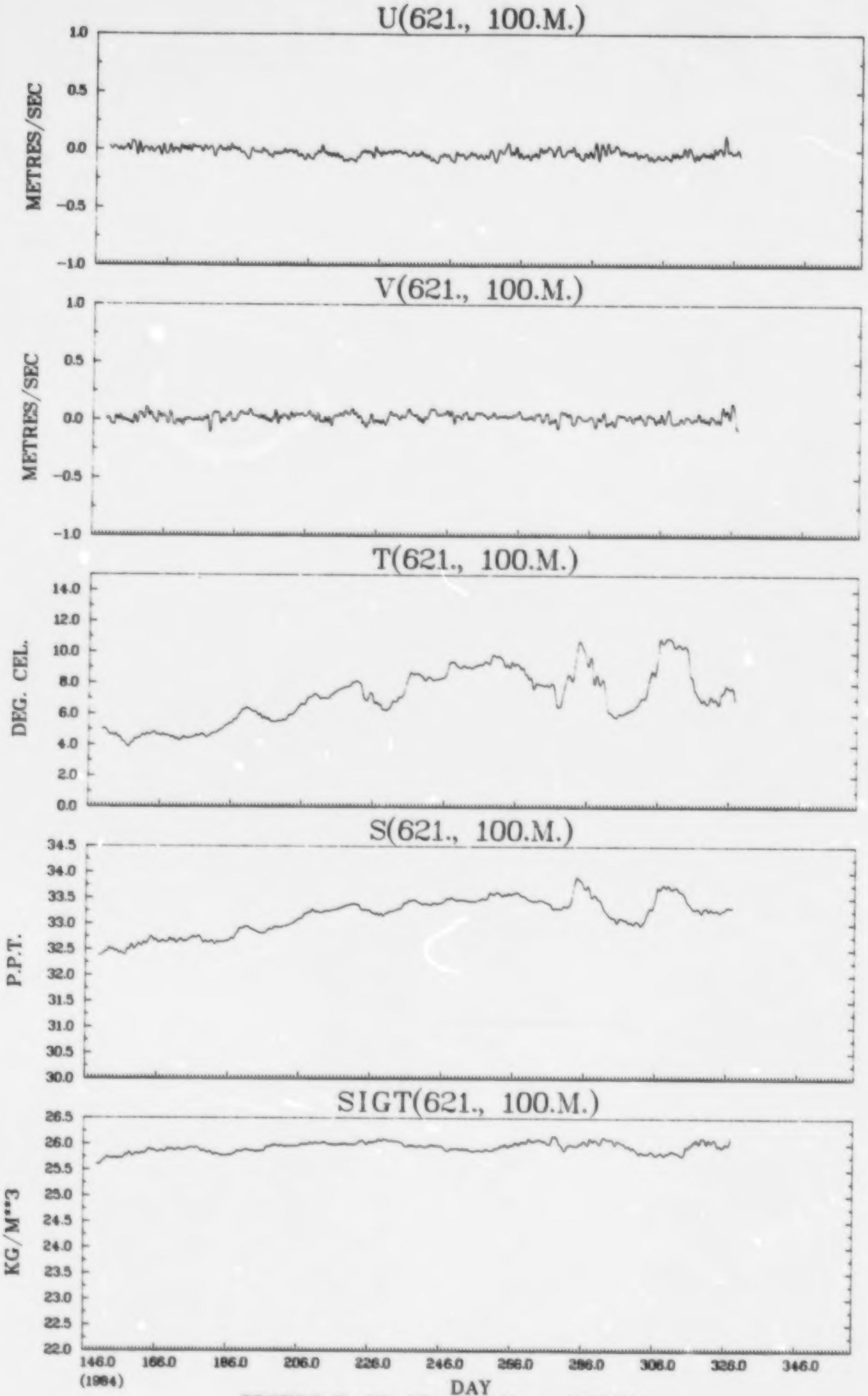
STN. 621, 100 M.



BROWNS BANK C2 MAY/84 - NOV/84



BROWNS BANK C2 MAY/84 – NOV/84



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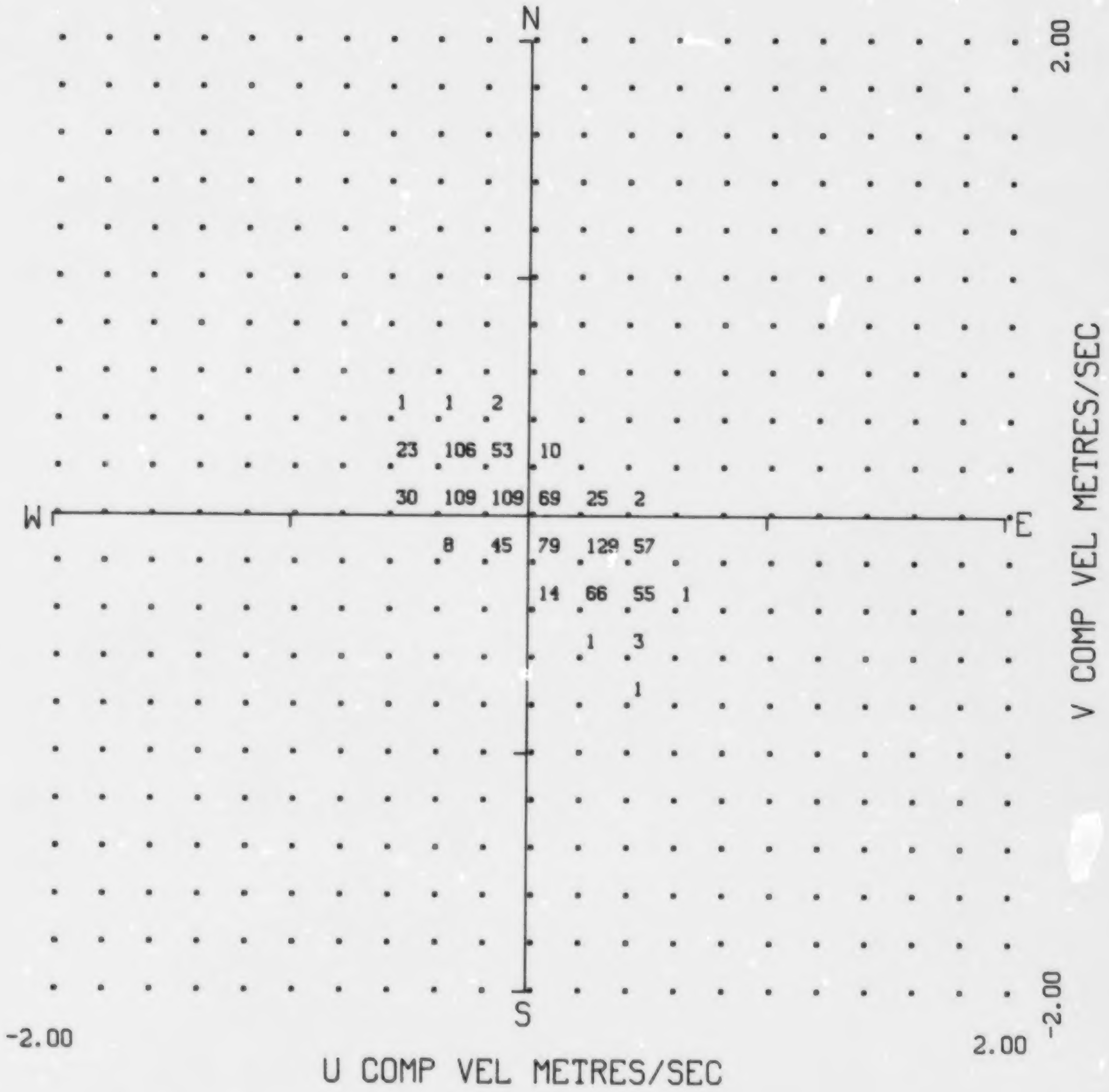

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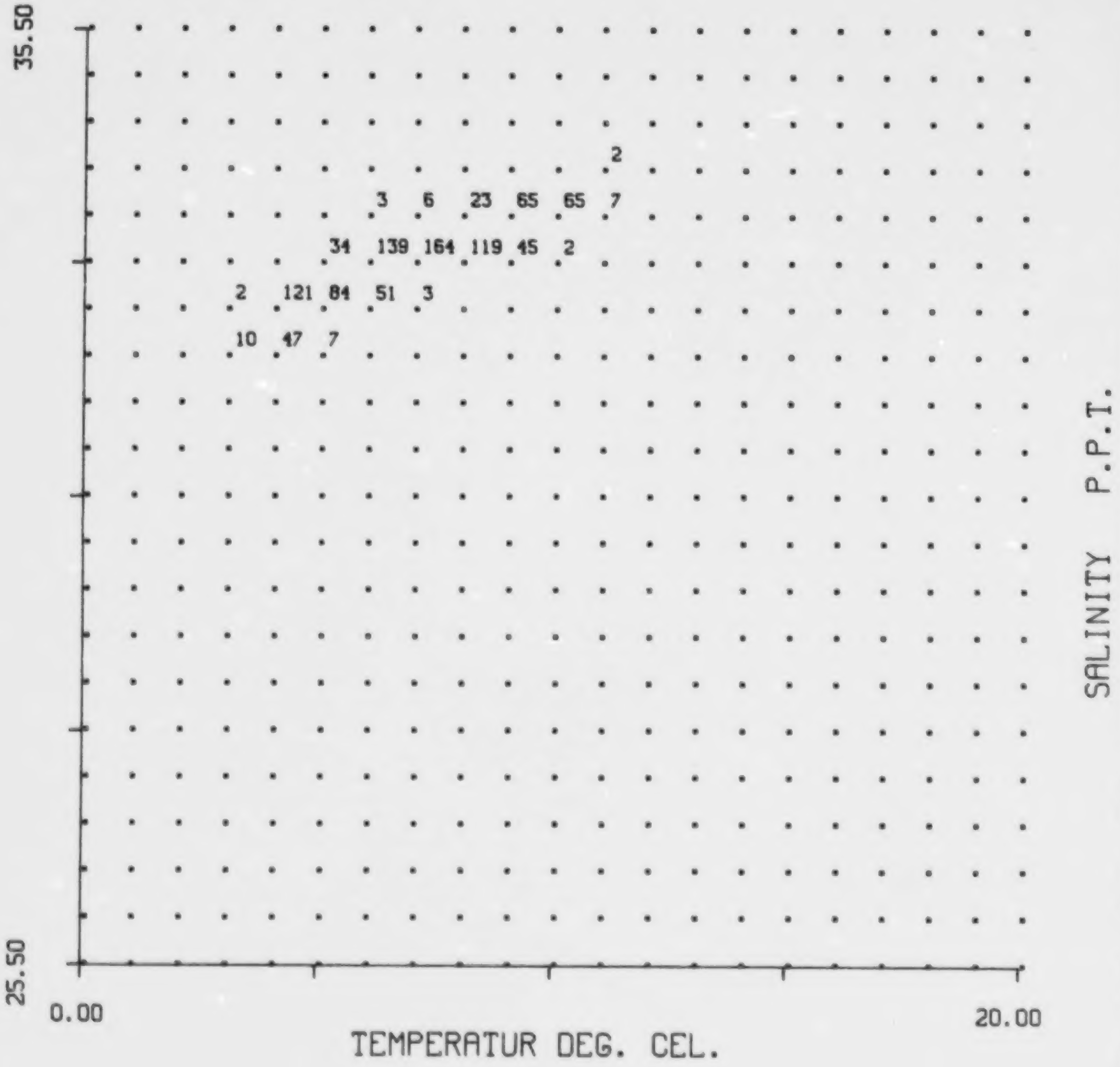

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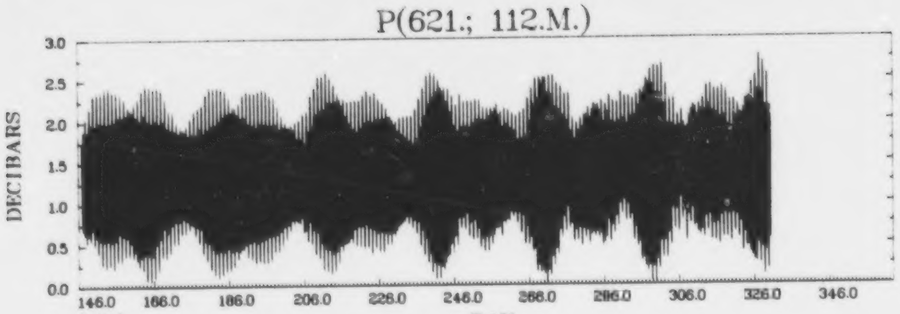

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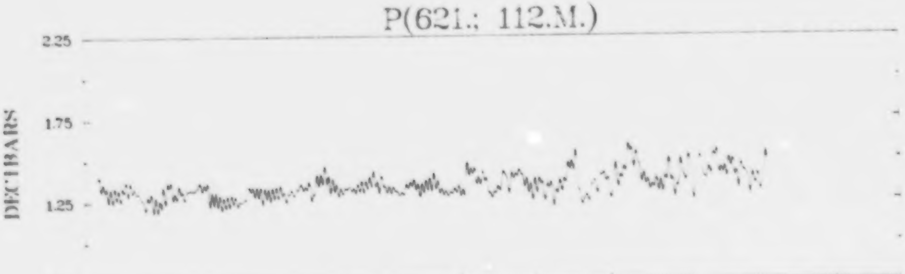
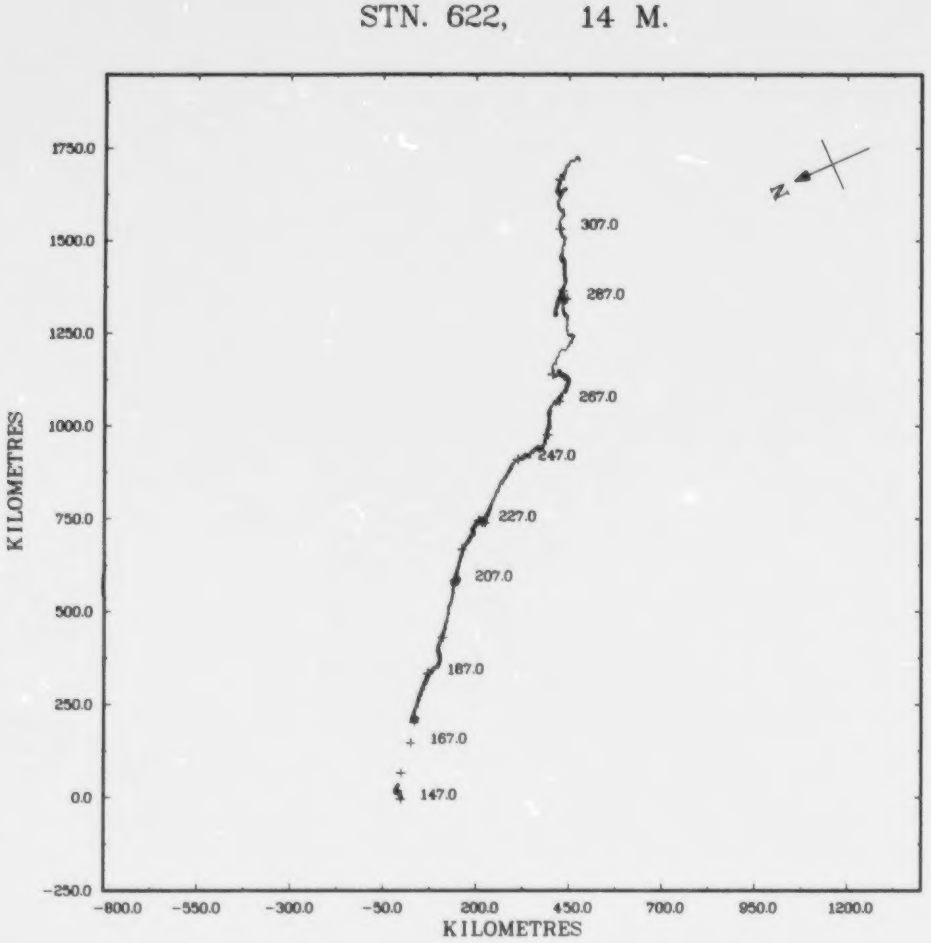


BROWNS BANK C2 MAY. /84 - NOV. /84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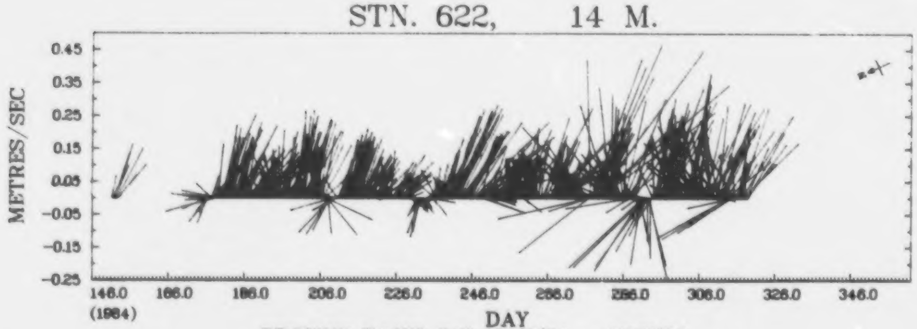
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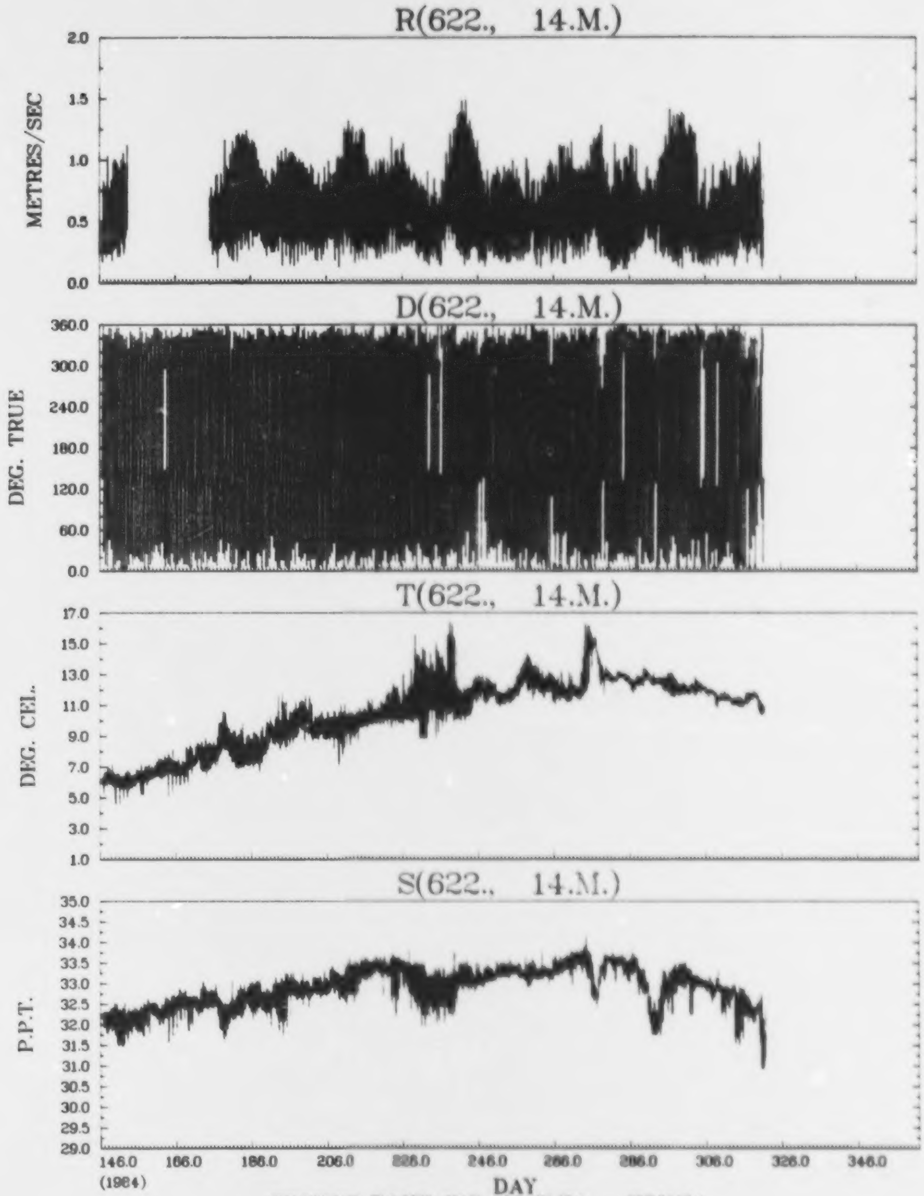
BROWNS BANK C10 MAY/84 - NOV/84



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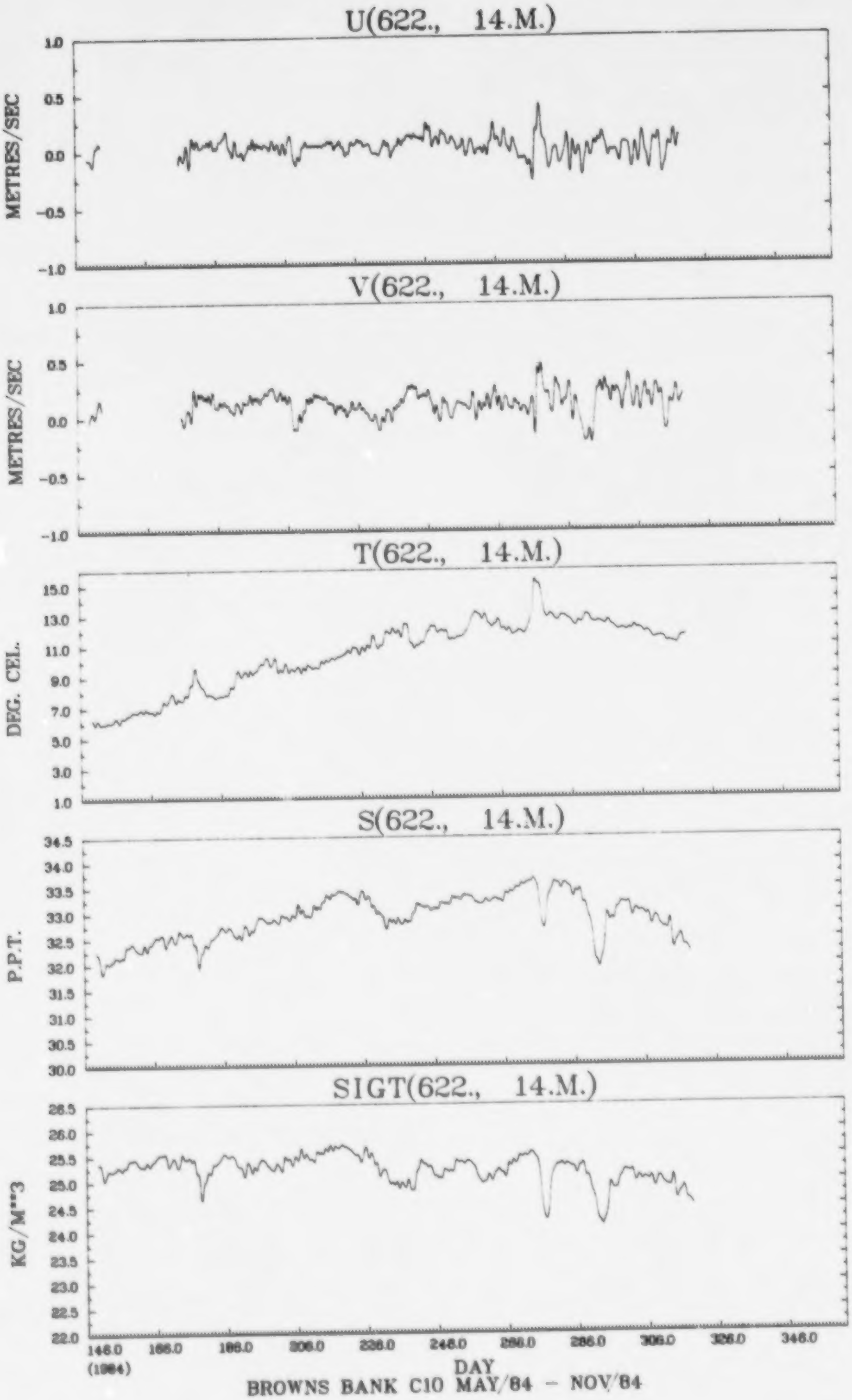

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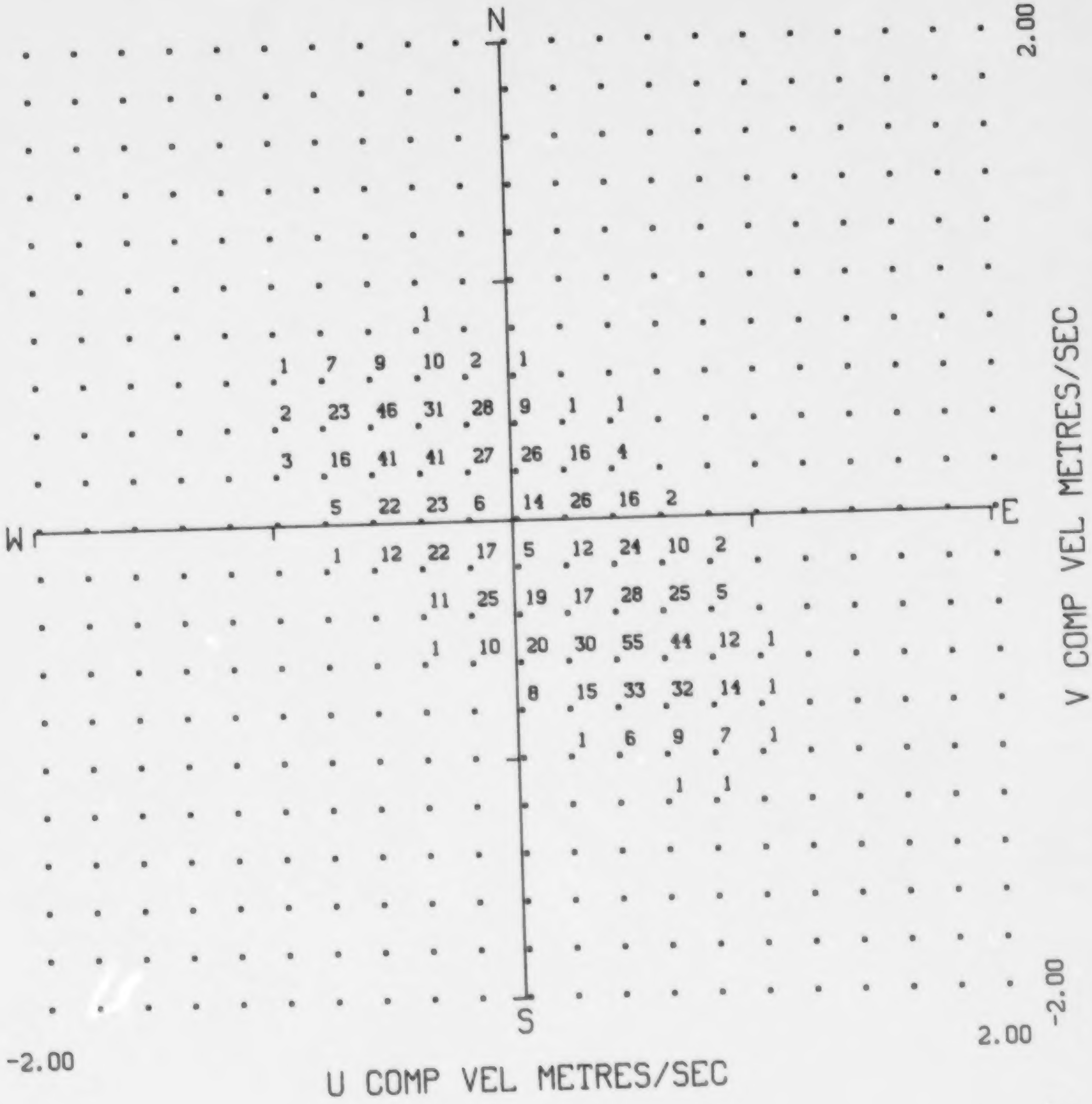

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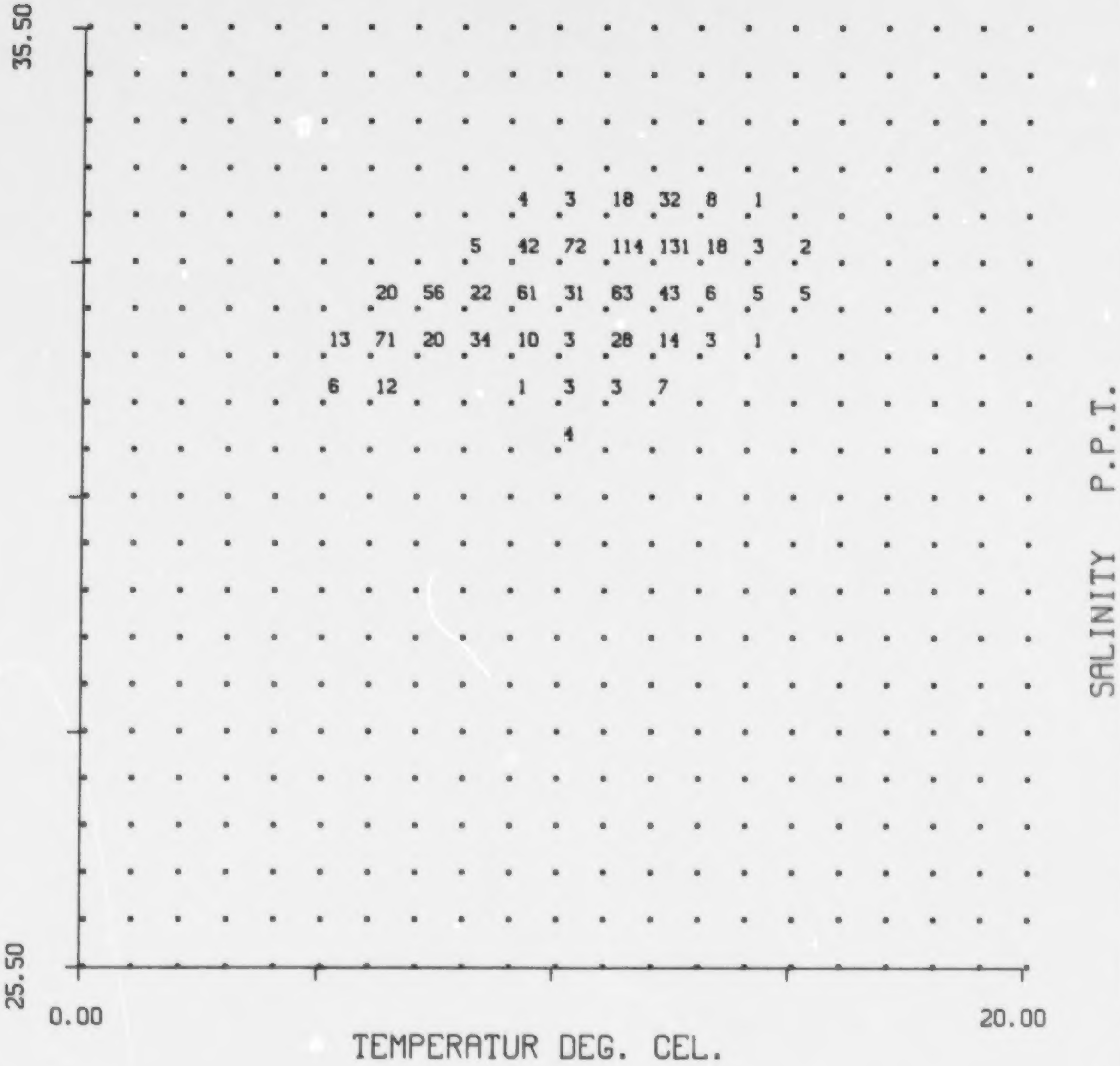

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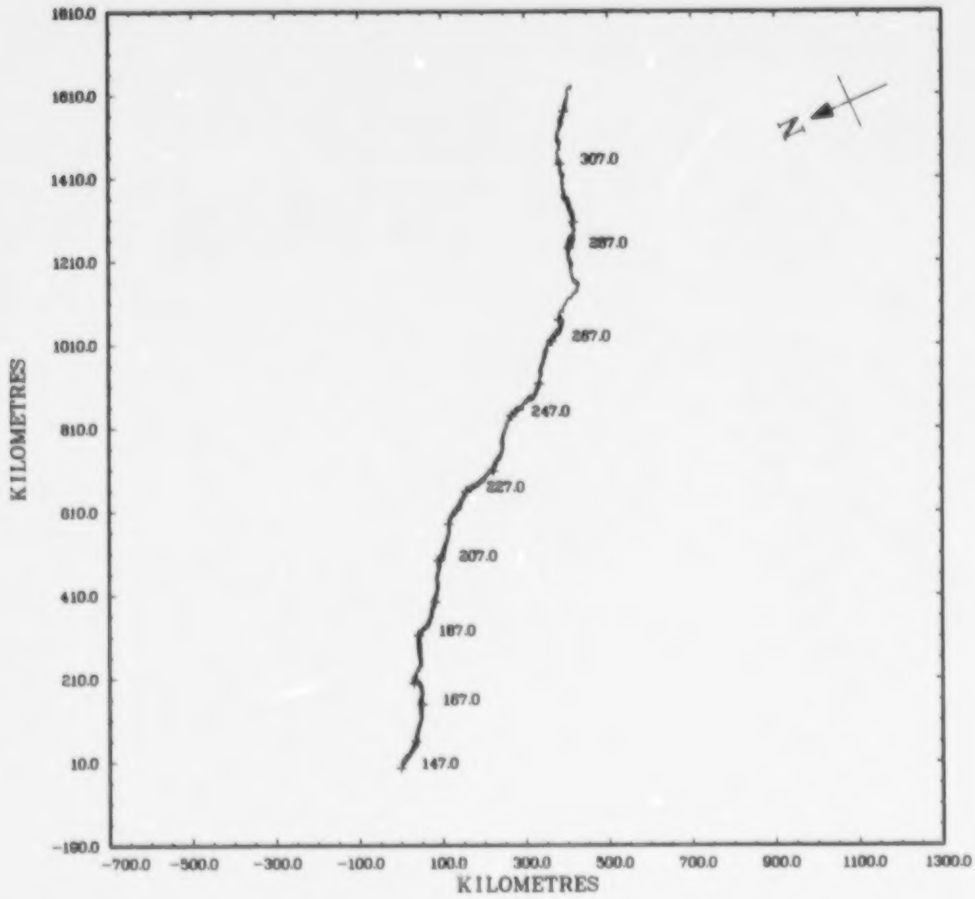

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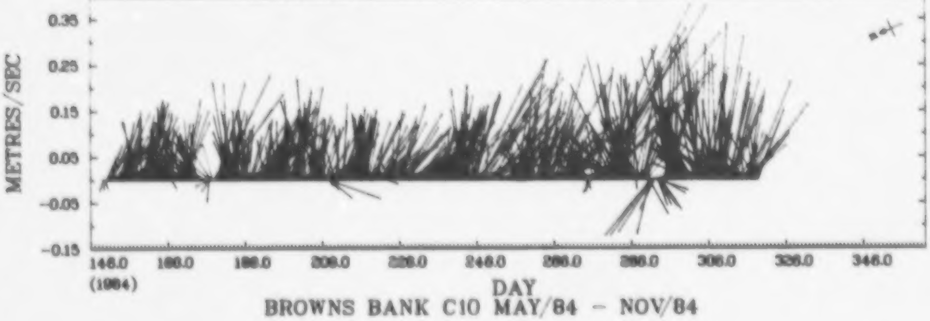

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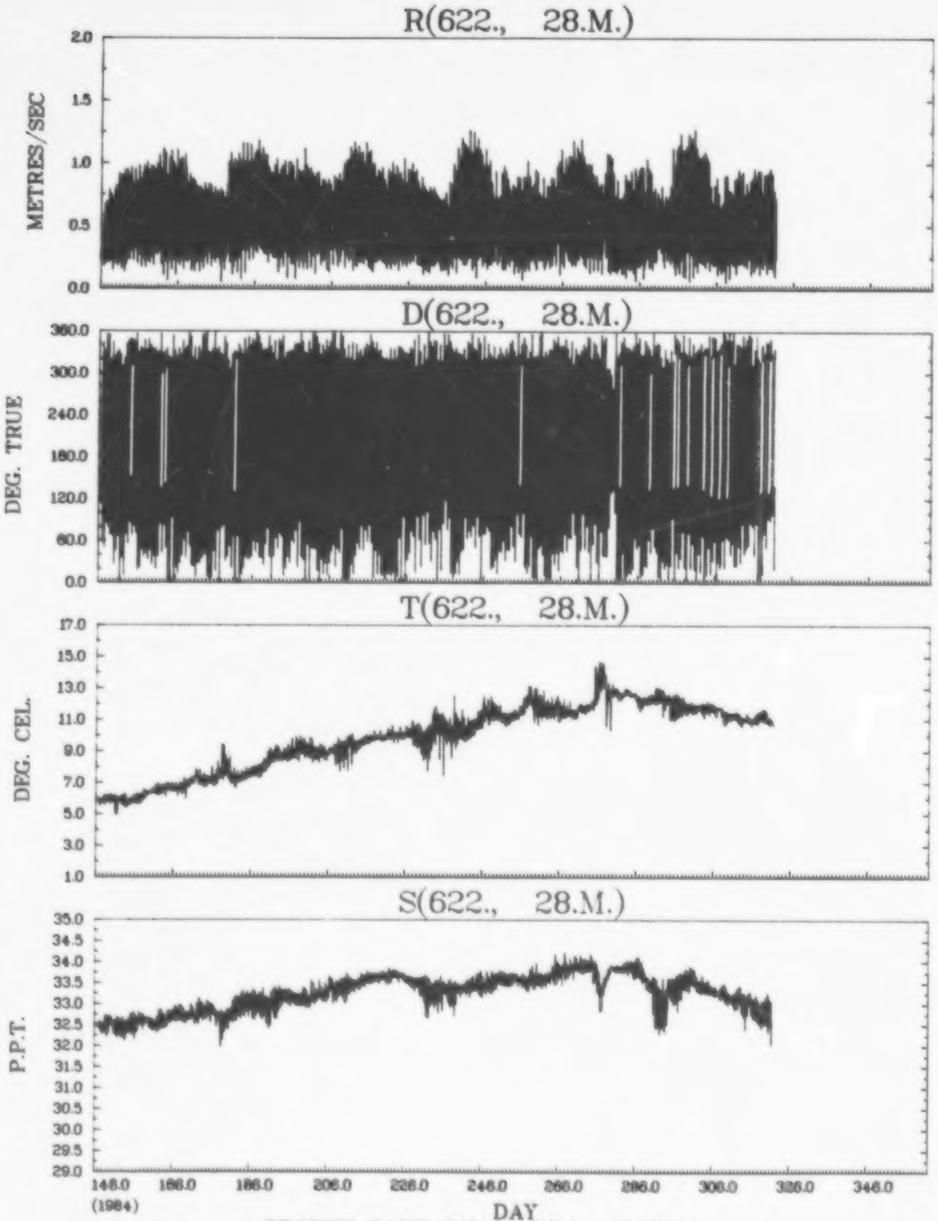

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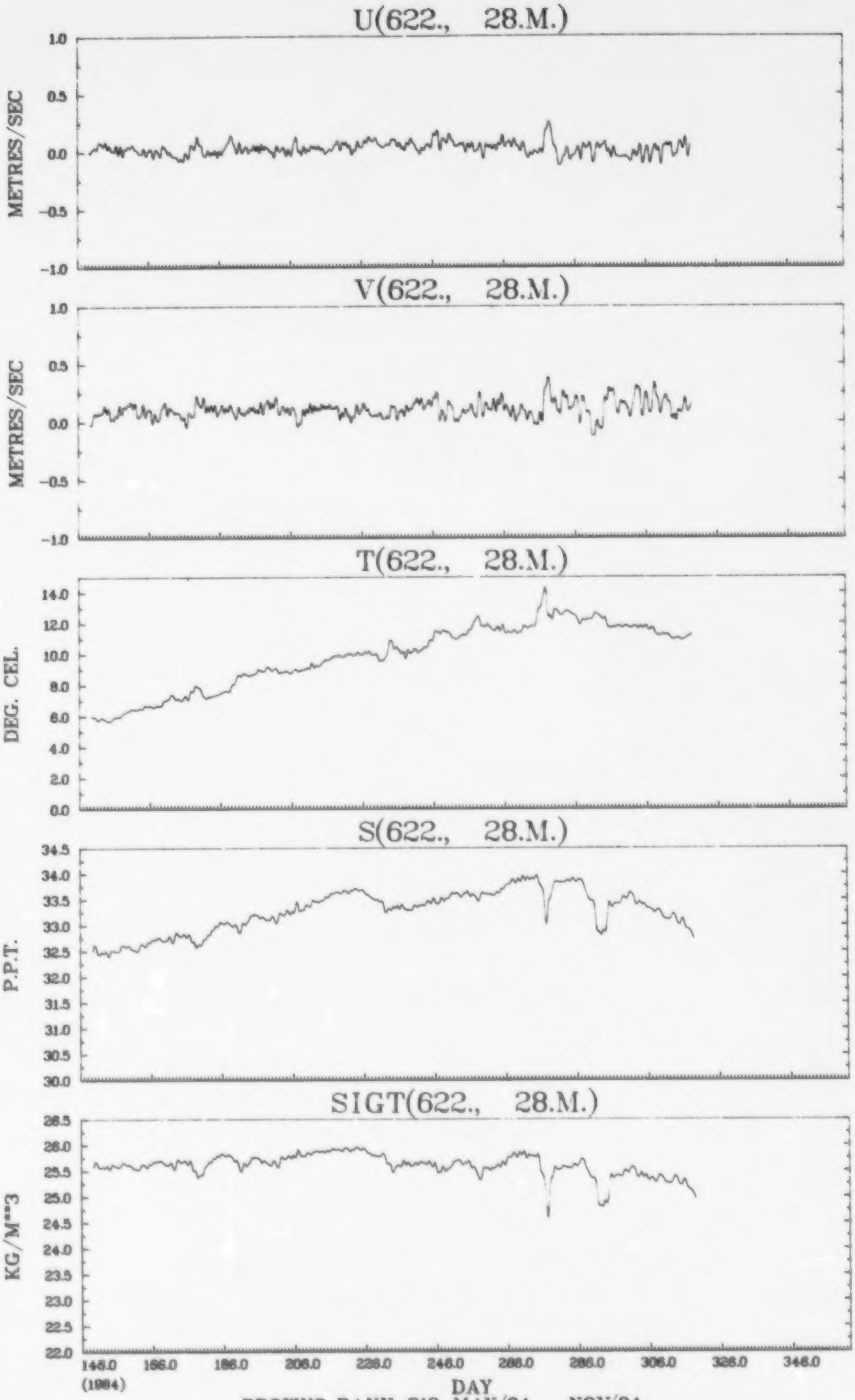

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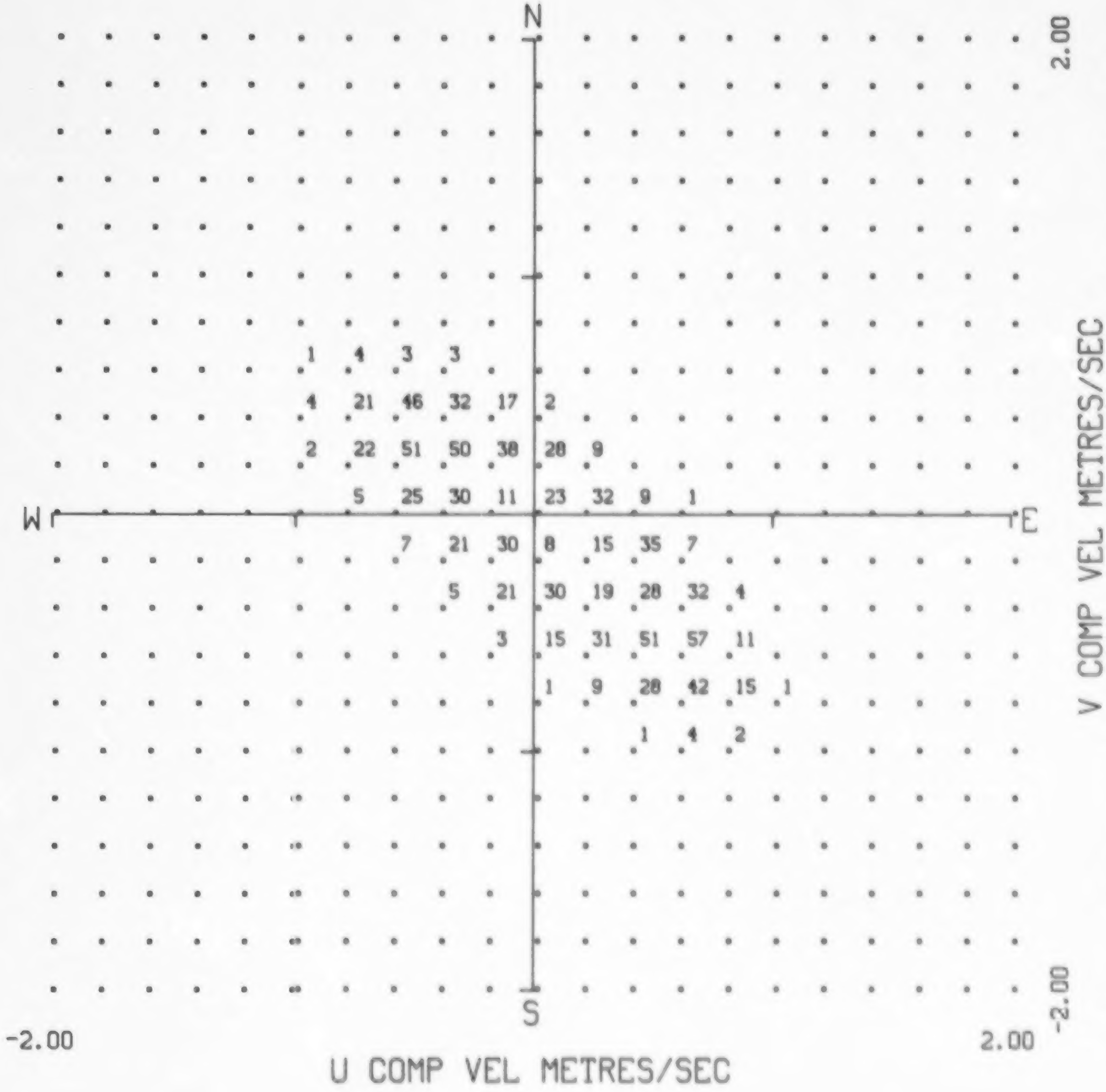

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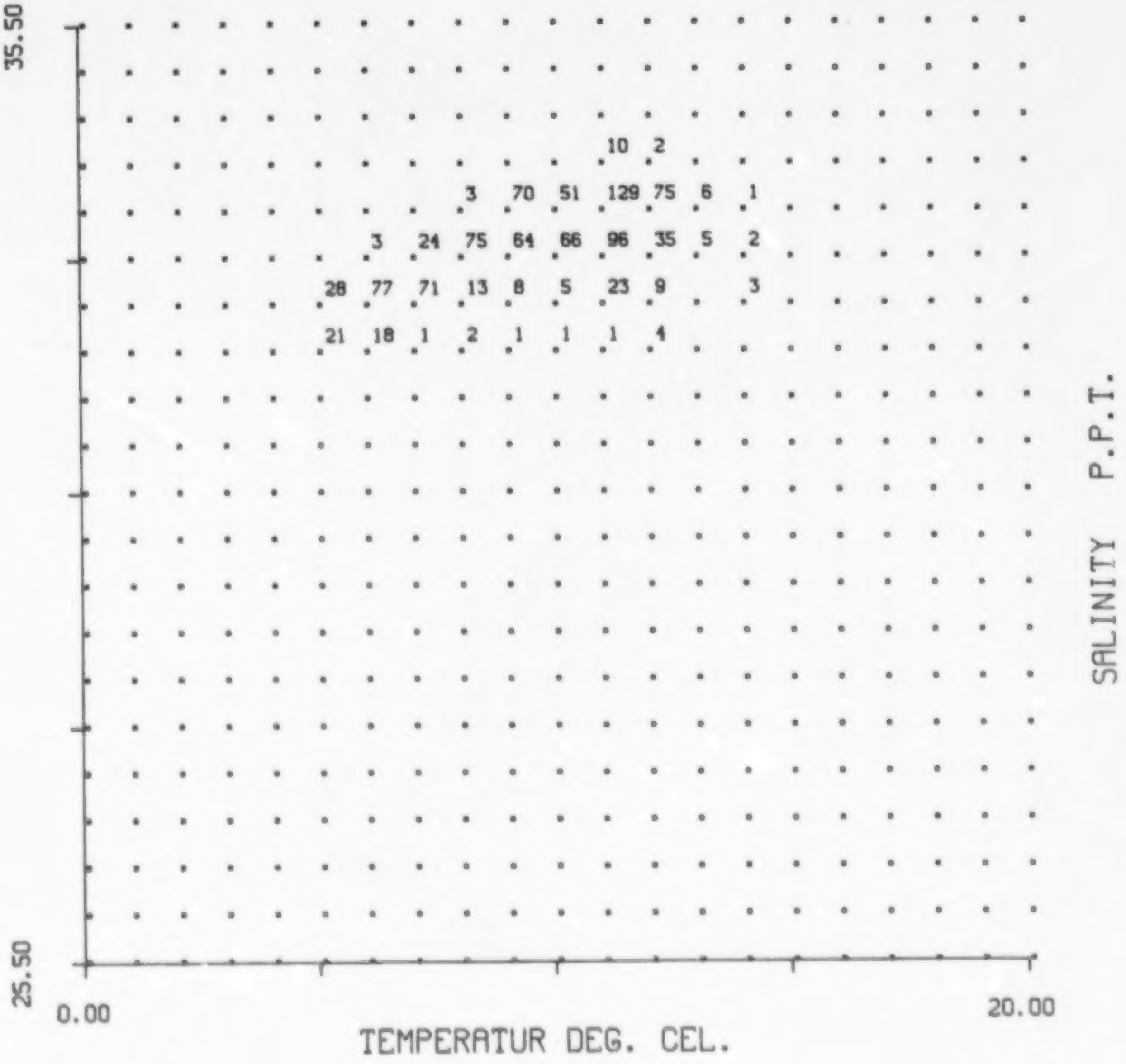

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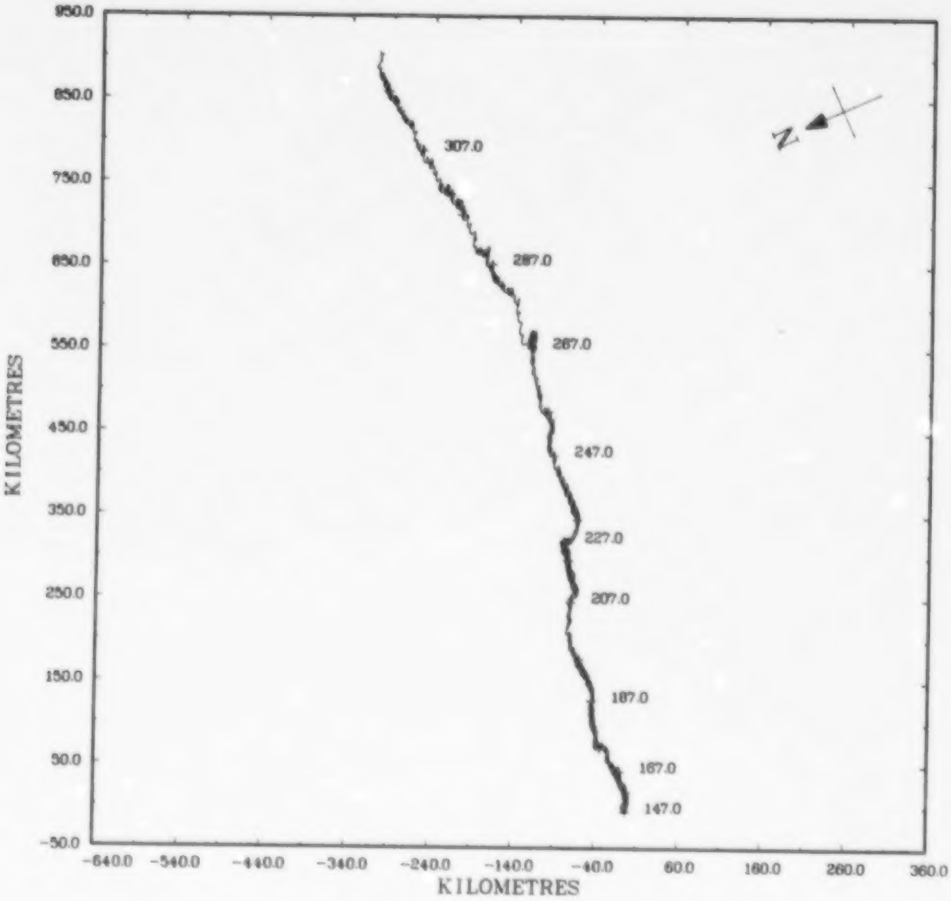

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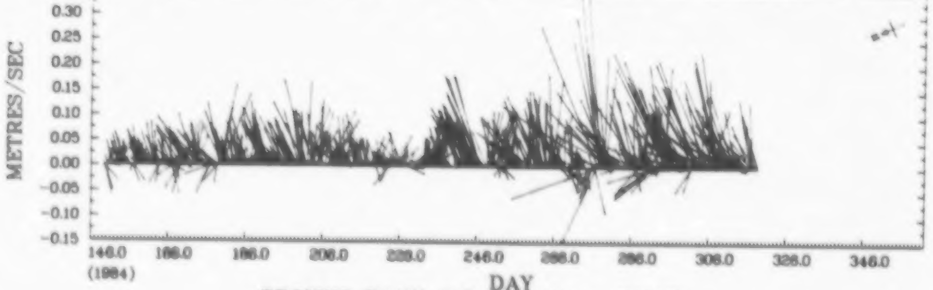

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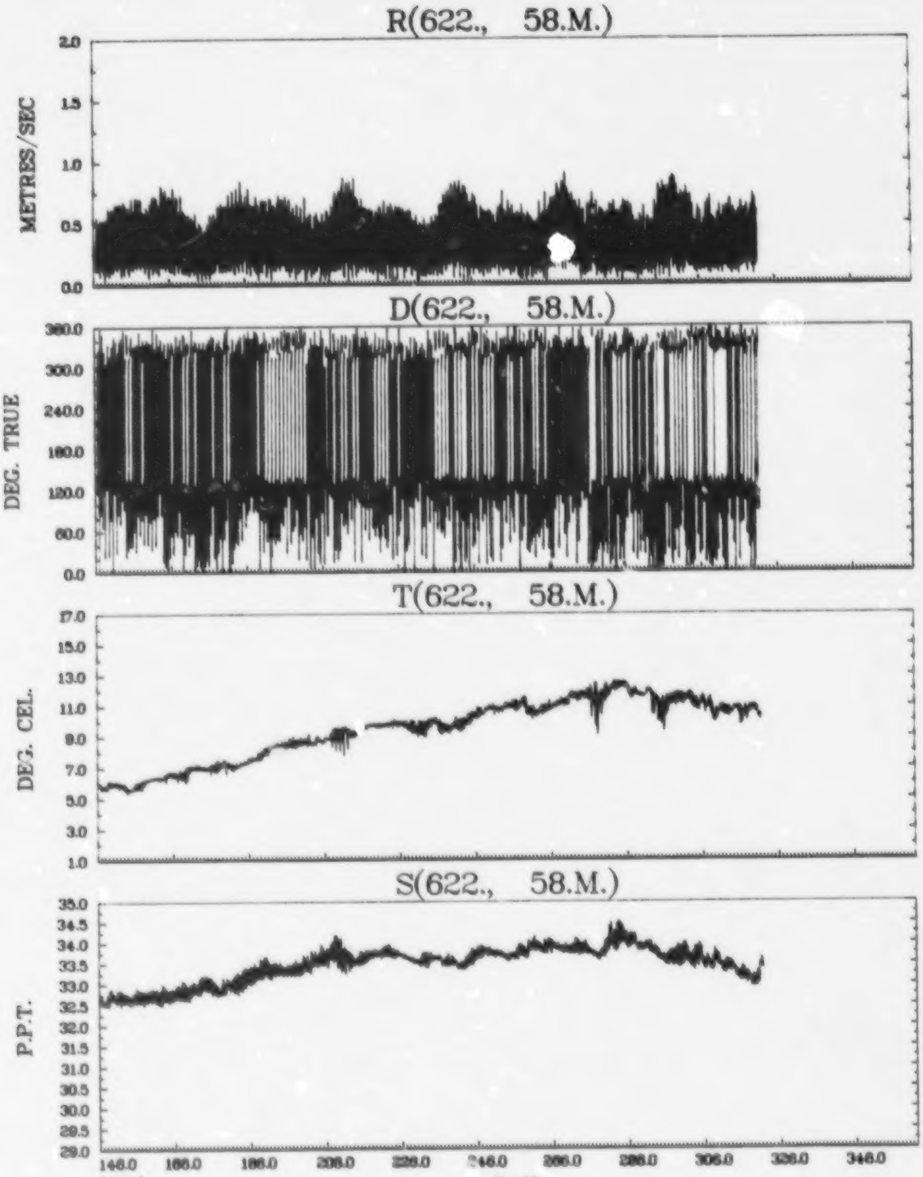

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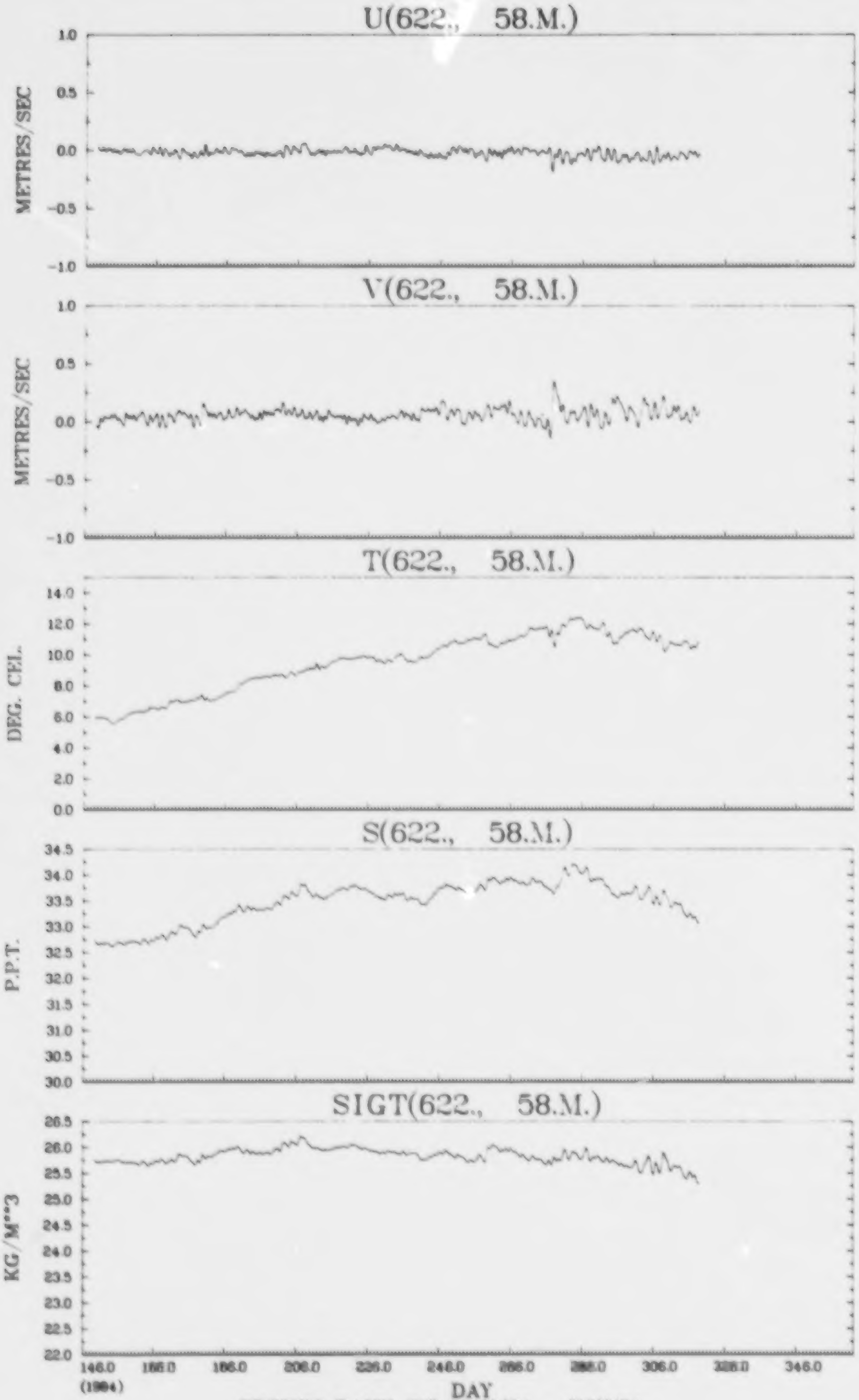

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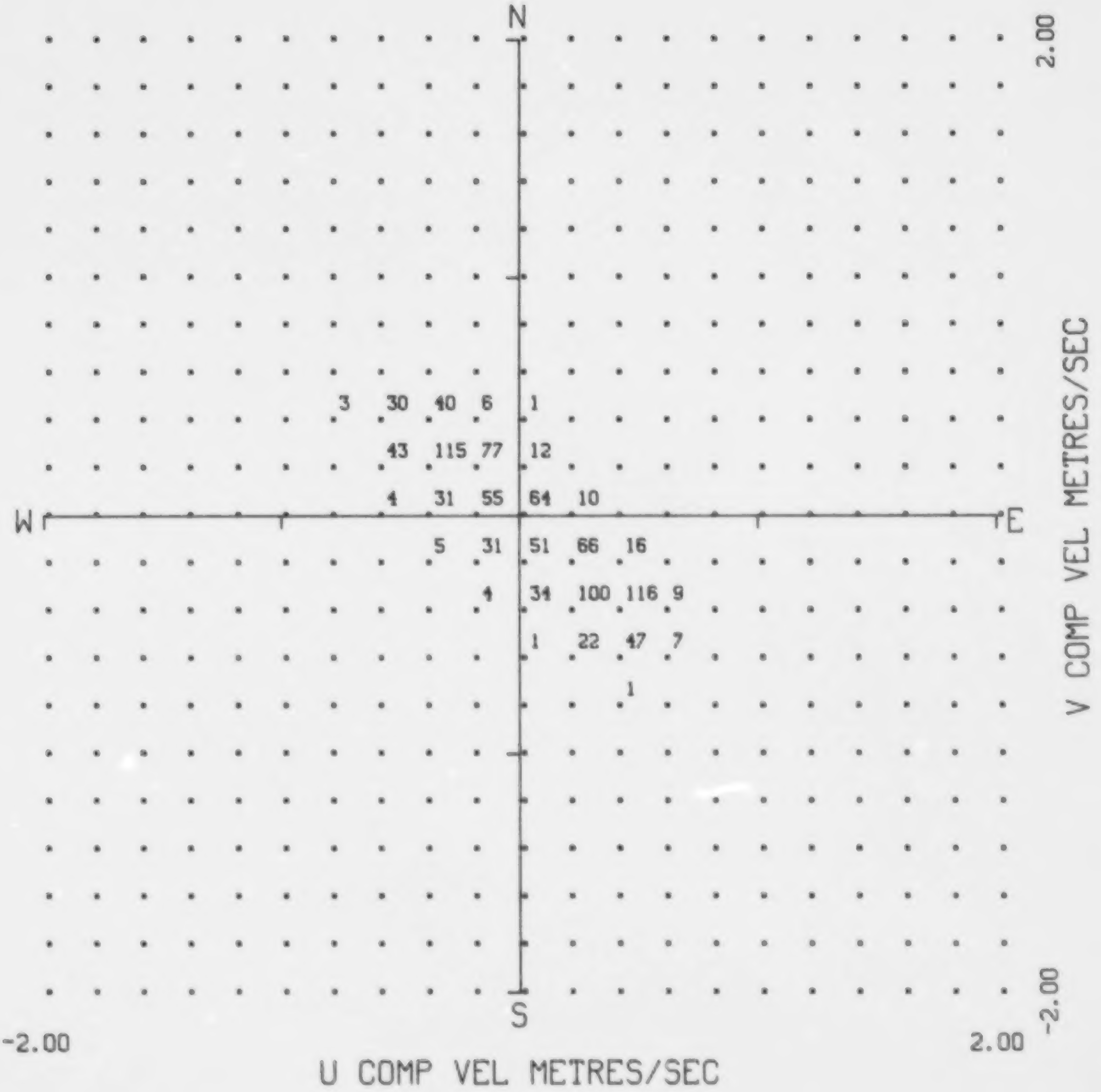

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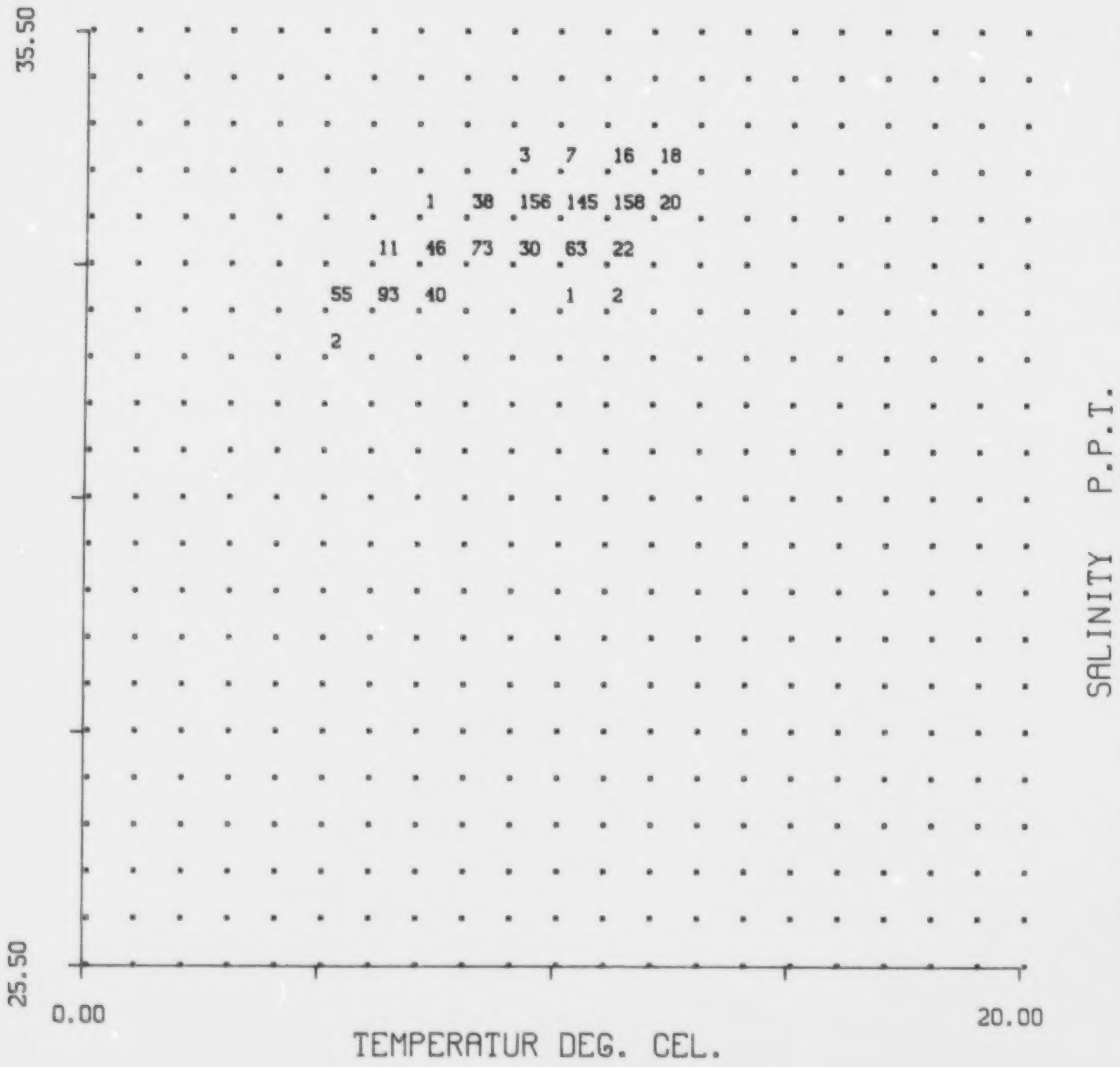

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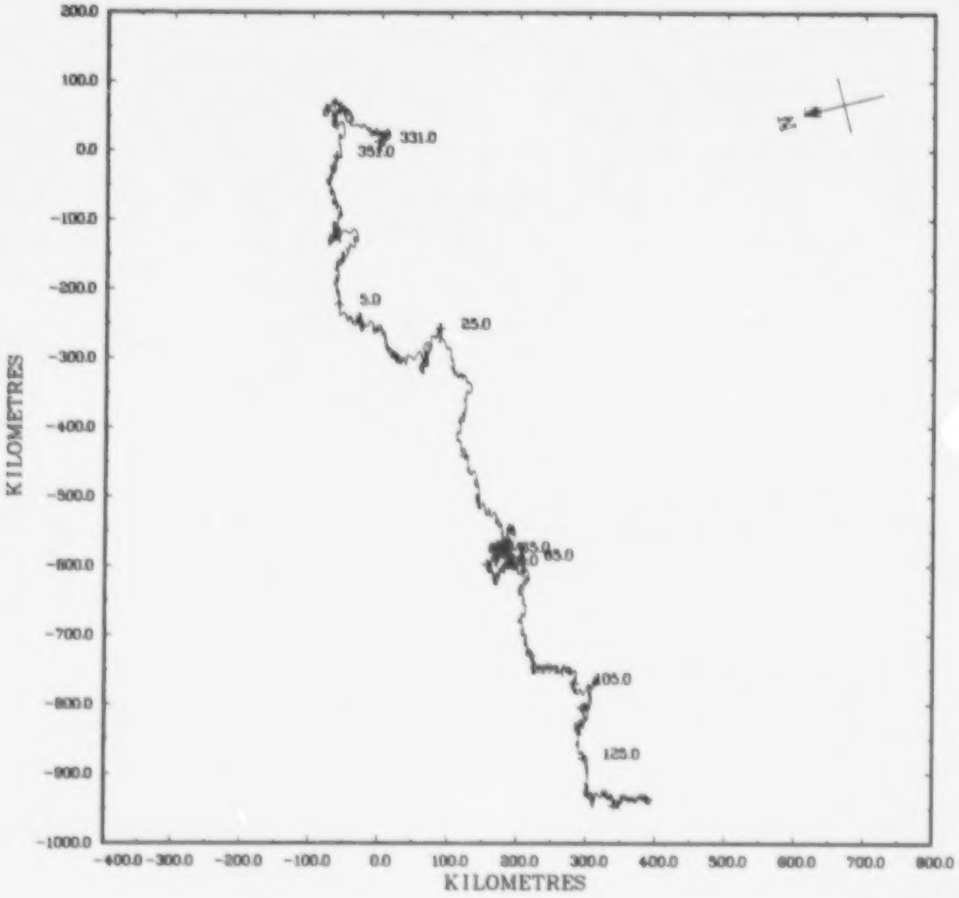
TABLE 13

MOORING SUMMARY CRUISE 84-043

SITE/ STATION	DEPTH (M)	SOUNDING (M)	LATITUDE (NORTH)	LONGITUDE (WEST)	INST. NO.	TYPE*	START DATE	END DATE	COMMENTS
C2/668	13	108	43°02.89'	65°45.33'	7130	AAND	25/11/84	24/05/85	Several bad spikes removed.
	51	111	43°02.79'	65°45.13'	6406	AAND	25/11/84	24/05/85	Two cycles were removed where time count indicated discrepancy. Record had to be edited extensively because of spikes throughout the record.
	101	111	43°02.79'	65°45.13'	7121	AAND	25/11/84	24/05/85	Two cycles were added where time count indicated discrepancy.
	111	111	43°02.96'	65°45.42'	821	ATG	25/11/84	24/05/85	Pressure data very questionable, heavy editing throughout the entire record. All highs and lows had to be interpolated from day 5 to day 144, 1985. Temperature data appears to be okay.
C10/667	15	70	42°48.58'	66°02.08'	4200	AAND	16/11/84	24/05/85	Slight amount of marine growth on instrument.
	31	71	42°48.41'	66°01.91'	822	AAND	16/11/84	24/05/85	Slight amount of marine growth on instrument. Conductivity channel had to have a large amount of spikes removed.
	61	71	42°48.41'	66°01.91'	2663	AAND	16/11/84	24/05/85	Slight amount of marine growth on instrument. A few bad spikes in the conductivity were removed. Rate stopped after day 325, 1984, for unknown reasons.

* AAND = AANDERAA CURRENT METER, ATG = AANDERAA TIDE GAUGE

STN. 668, 13 M.



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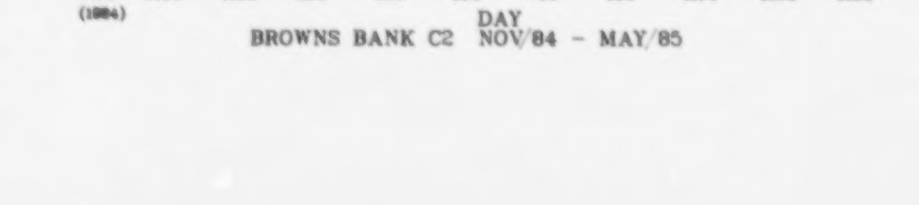
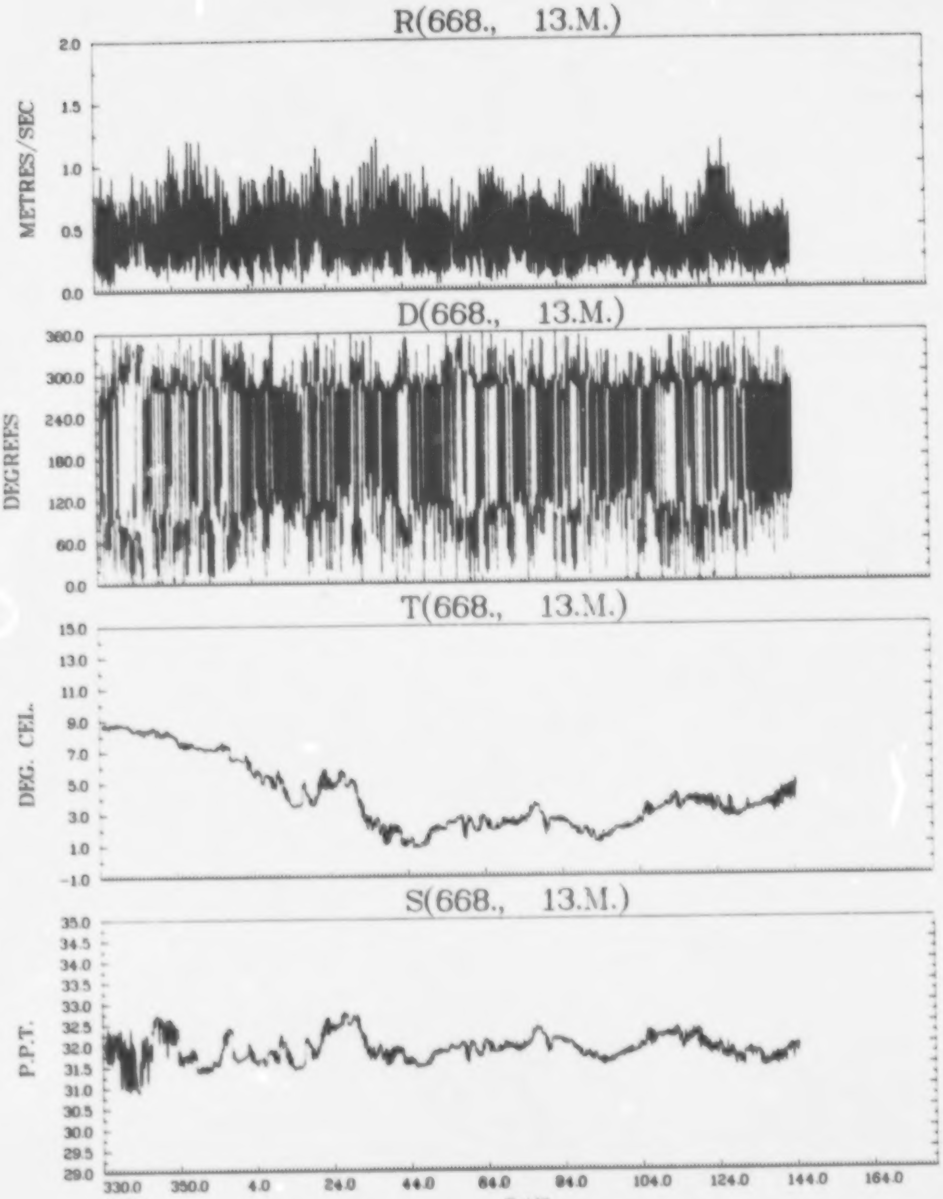


BROWNS BANK C2 NOV/84 - MAY/85



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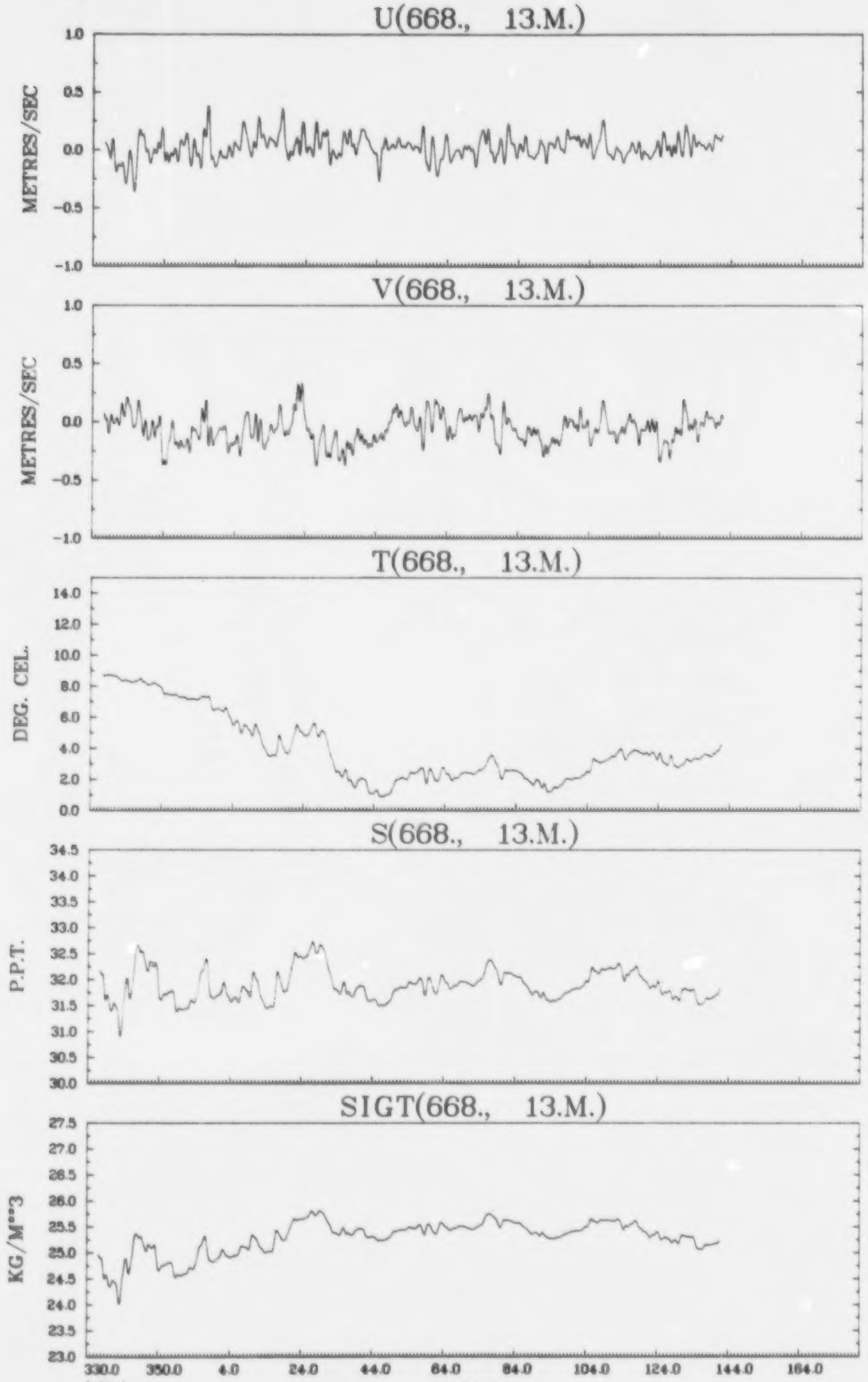

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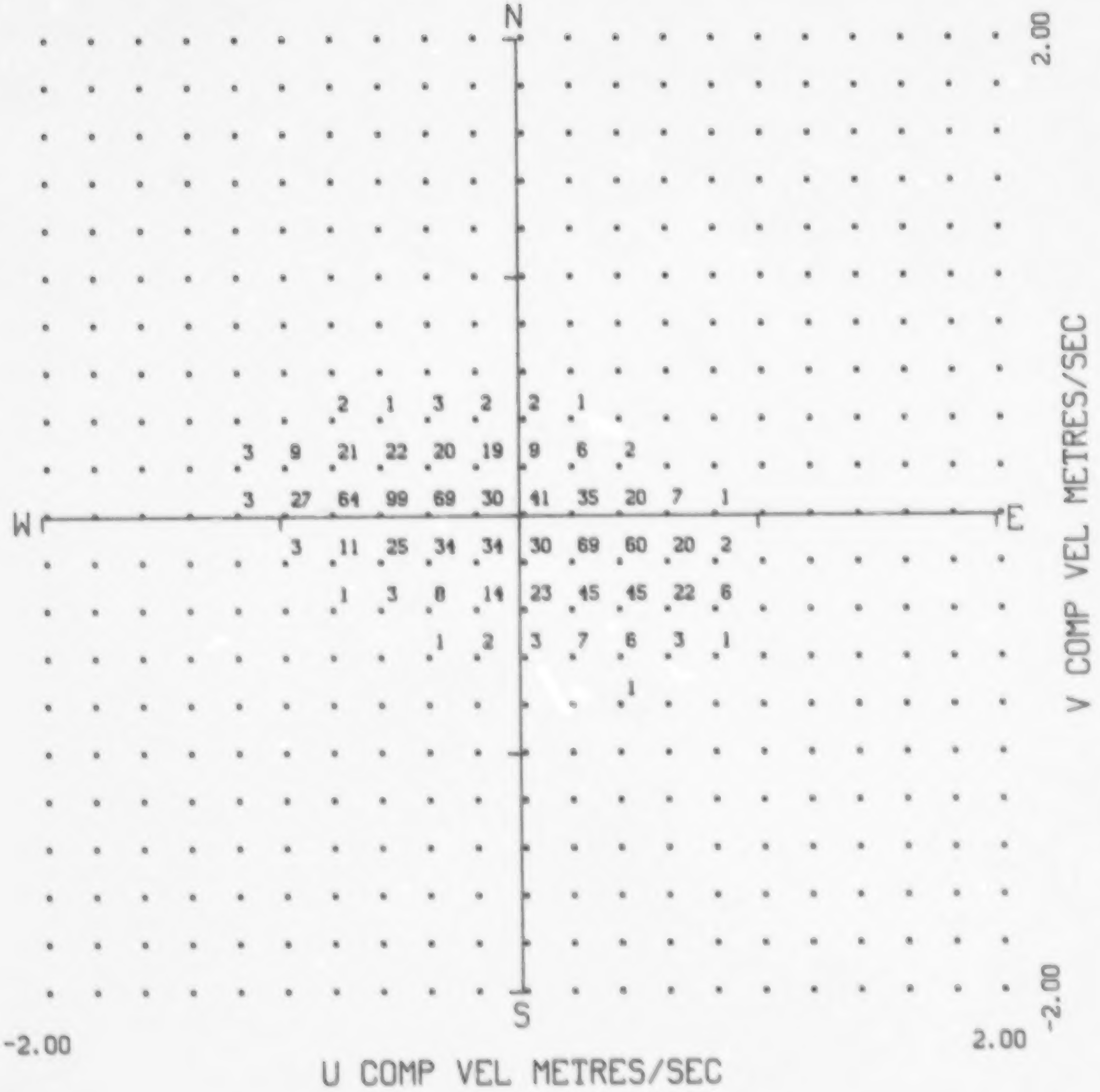

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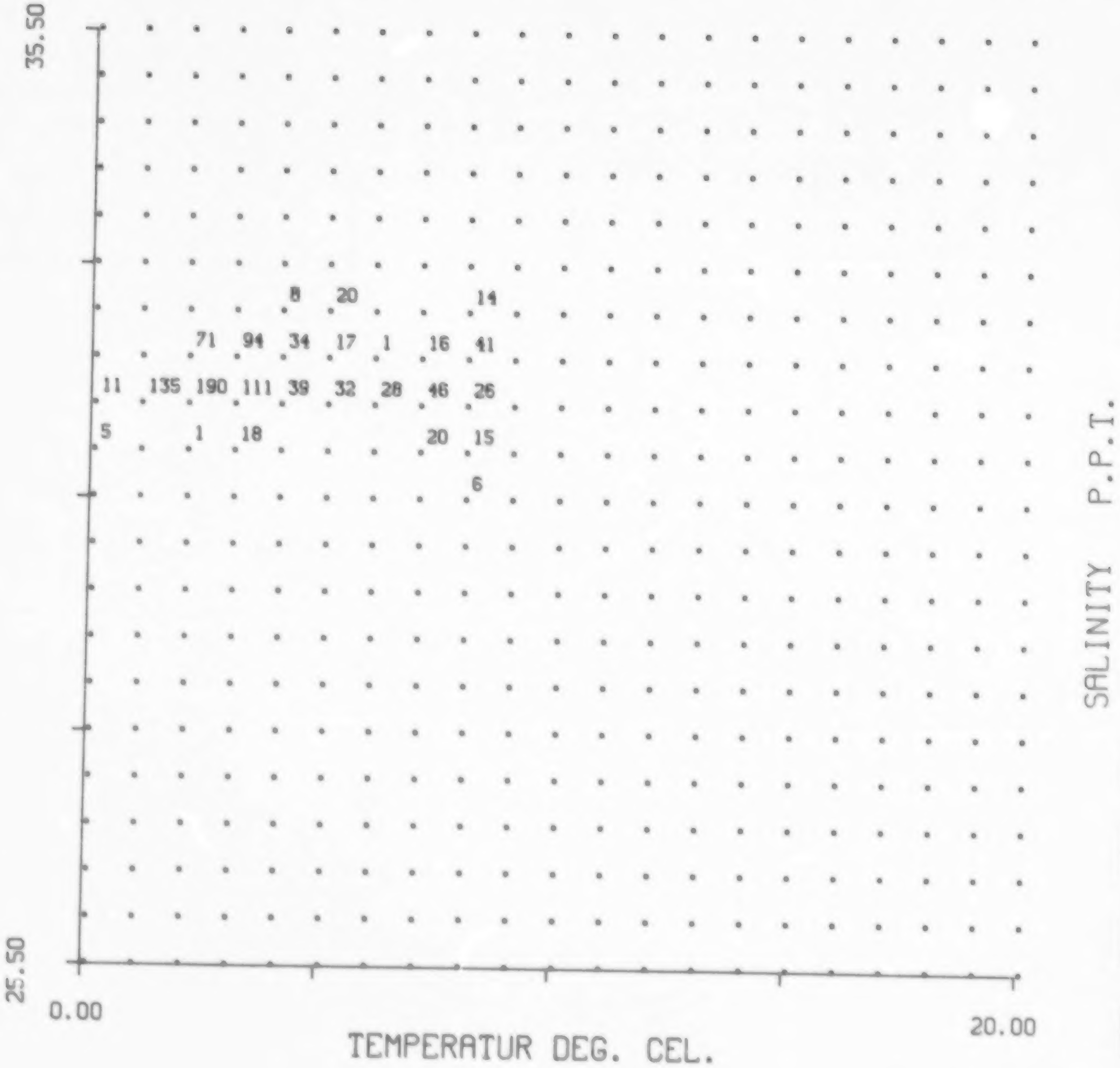

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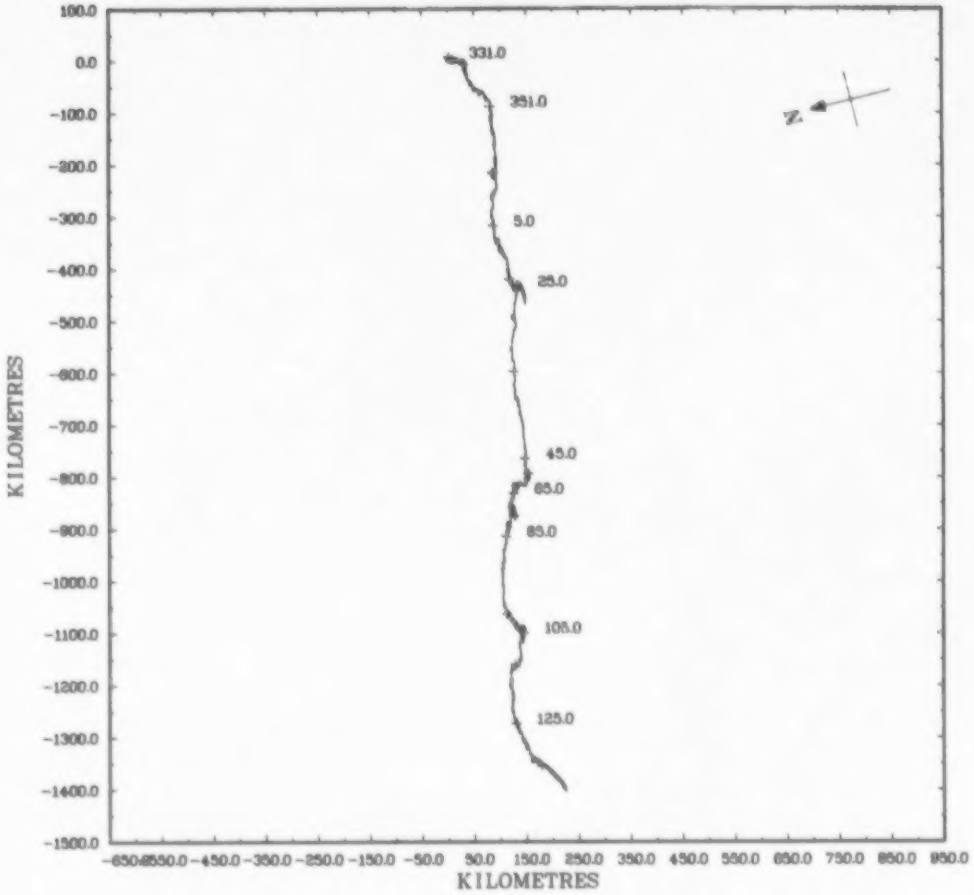

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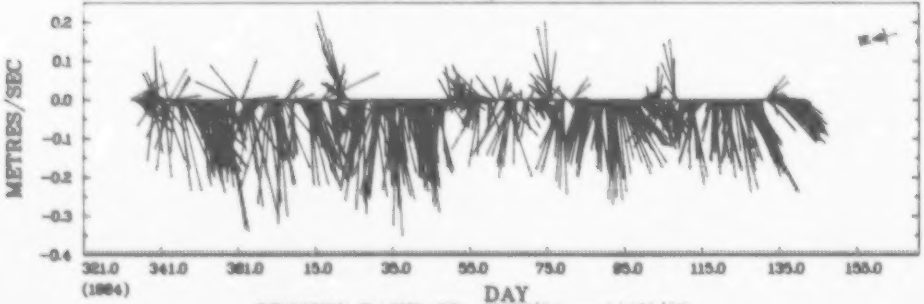

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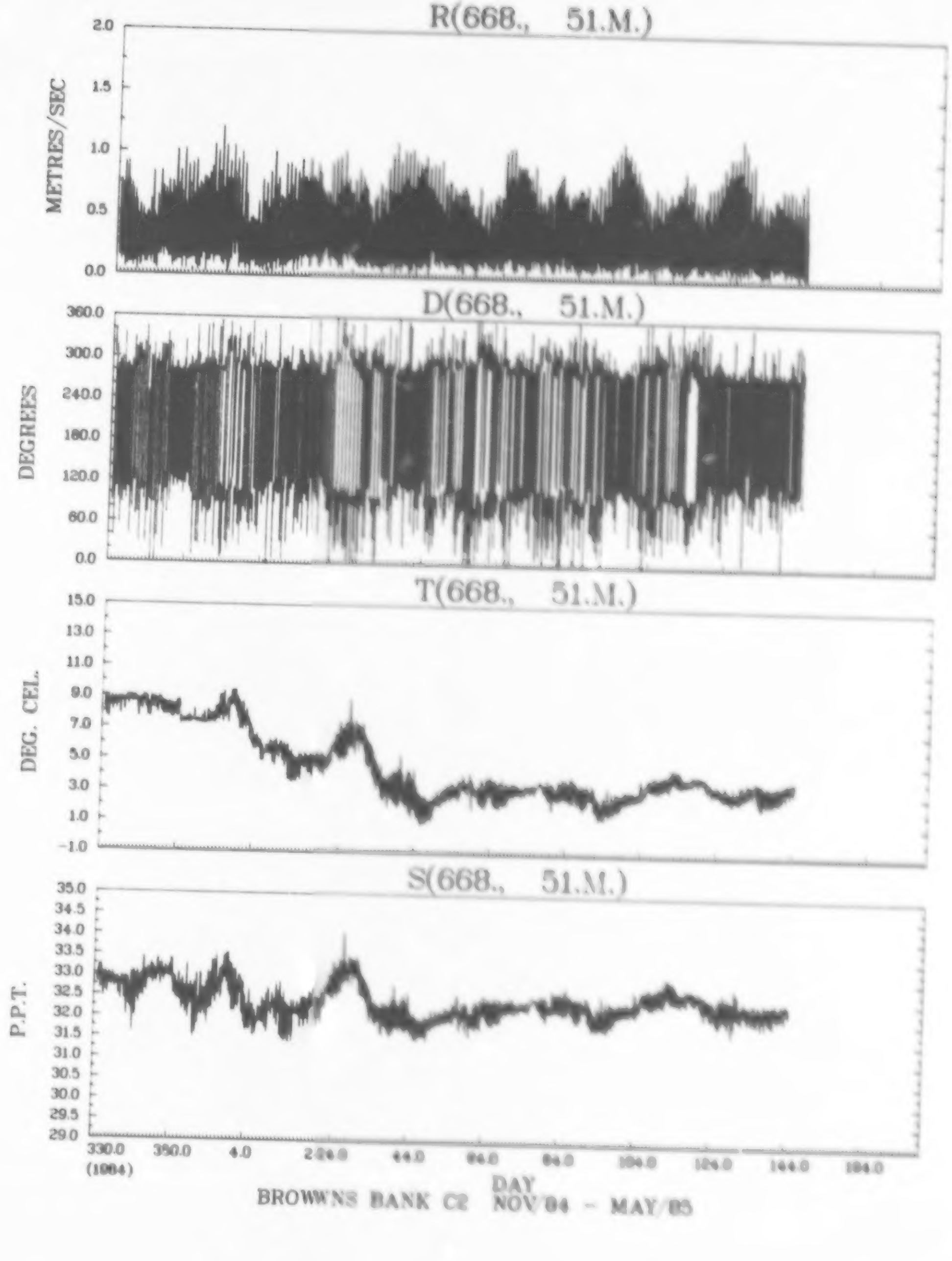

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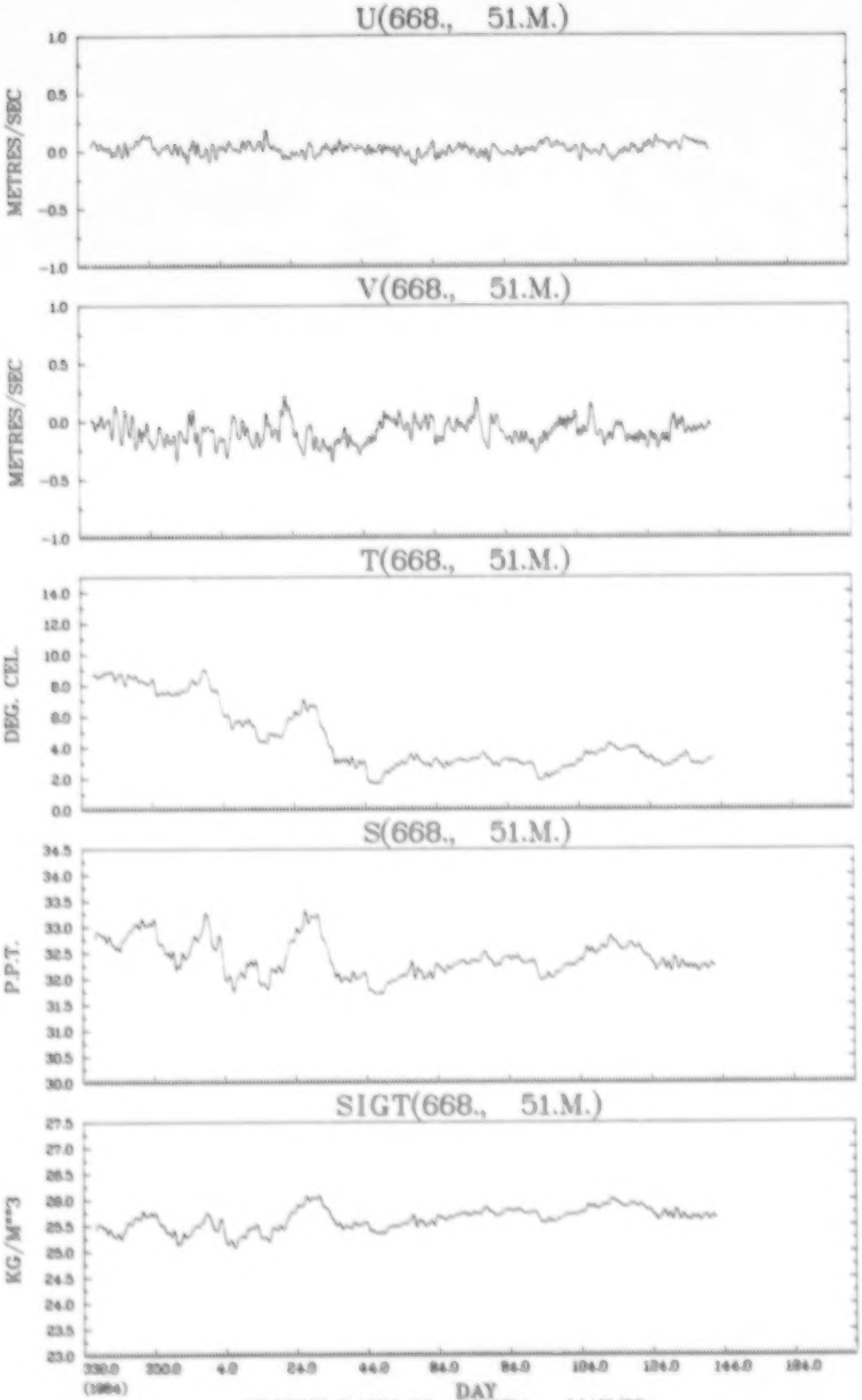

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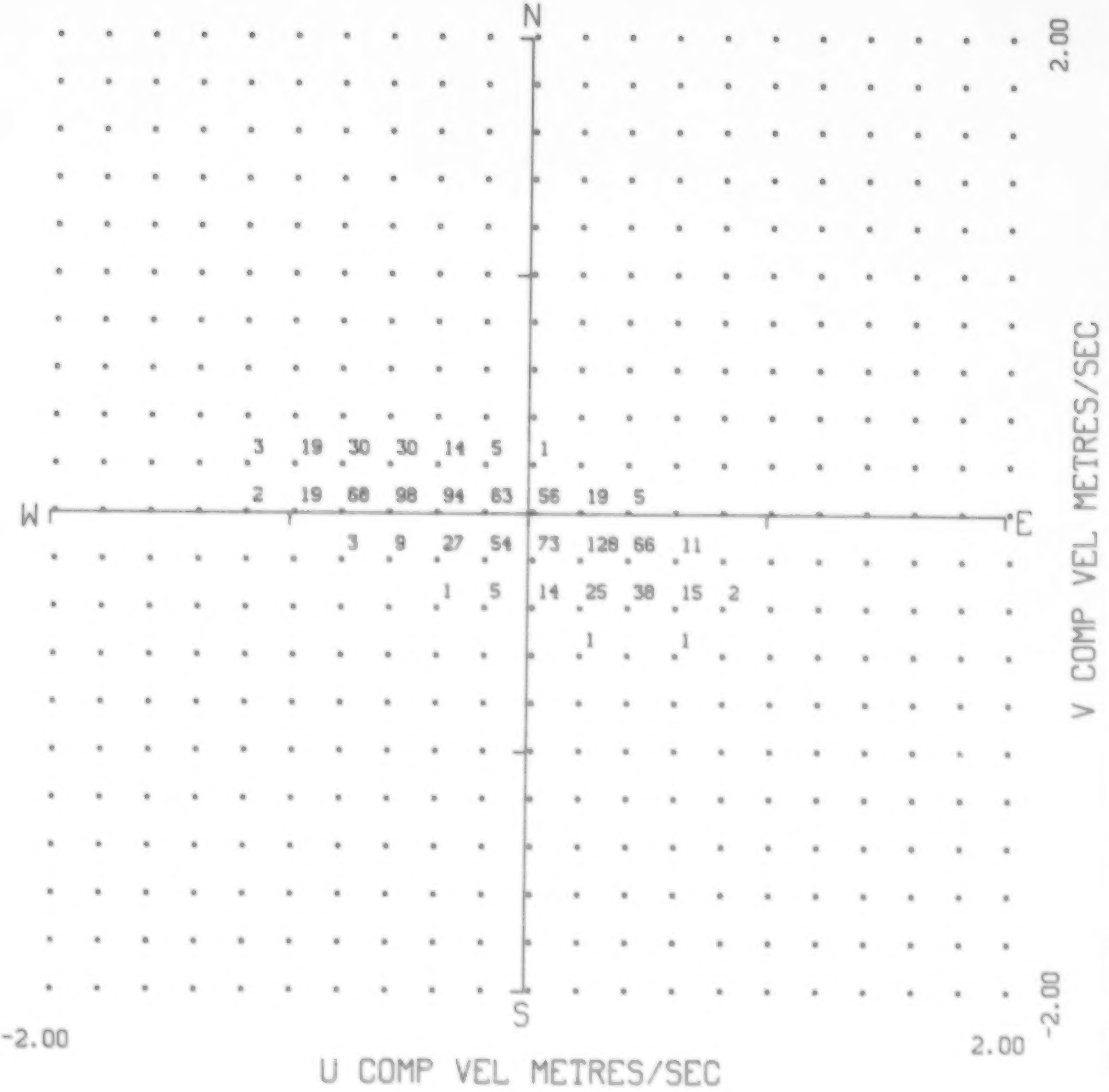

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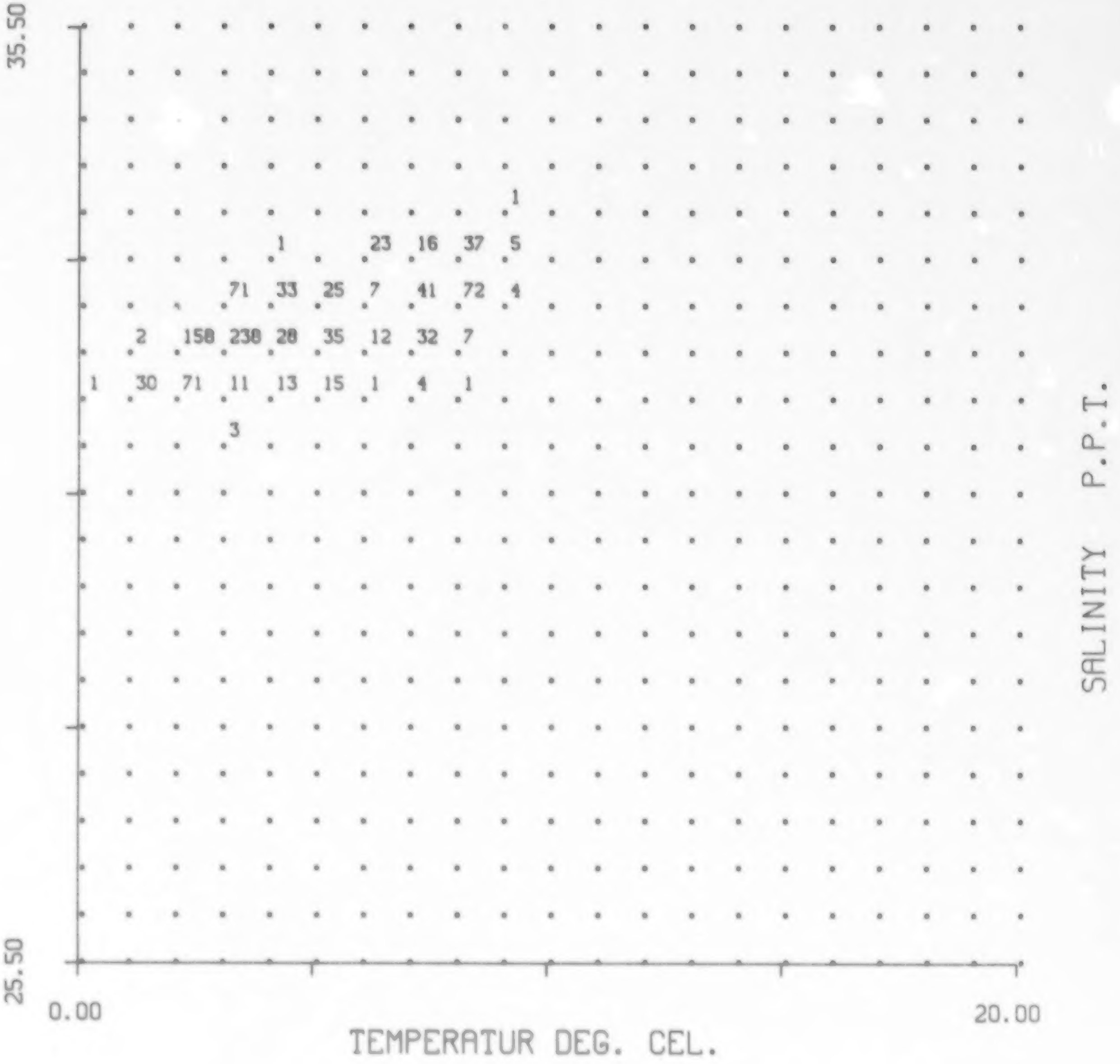

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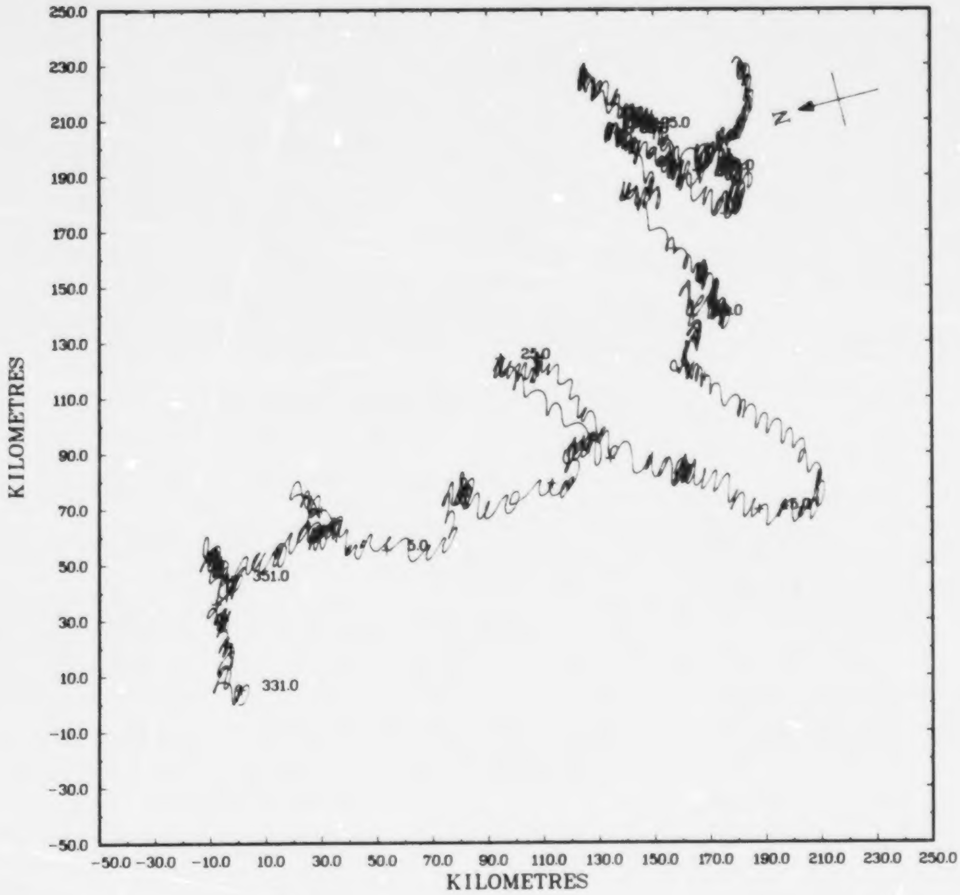

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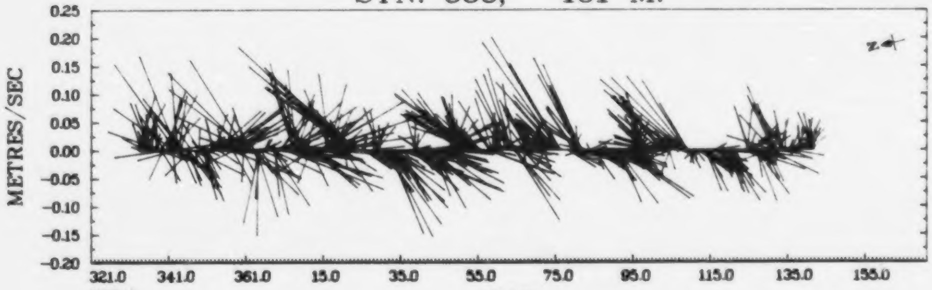

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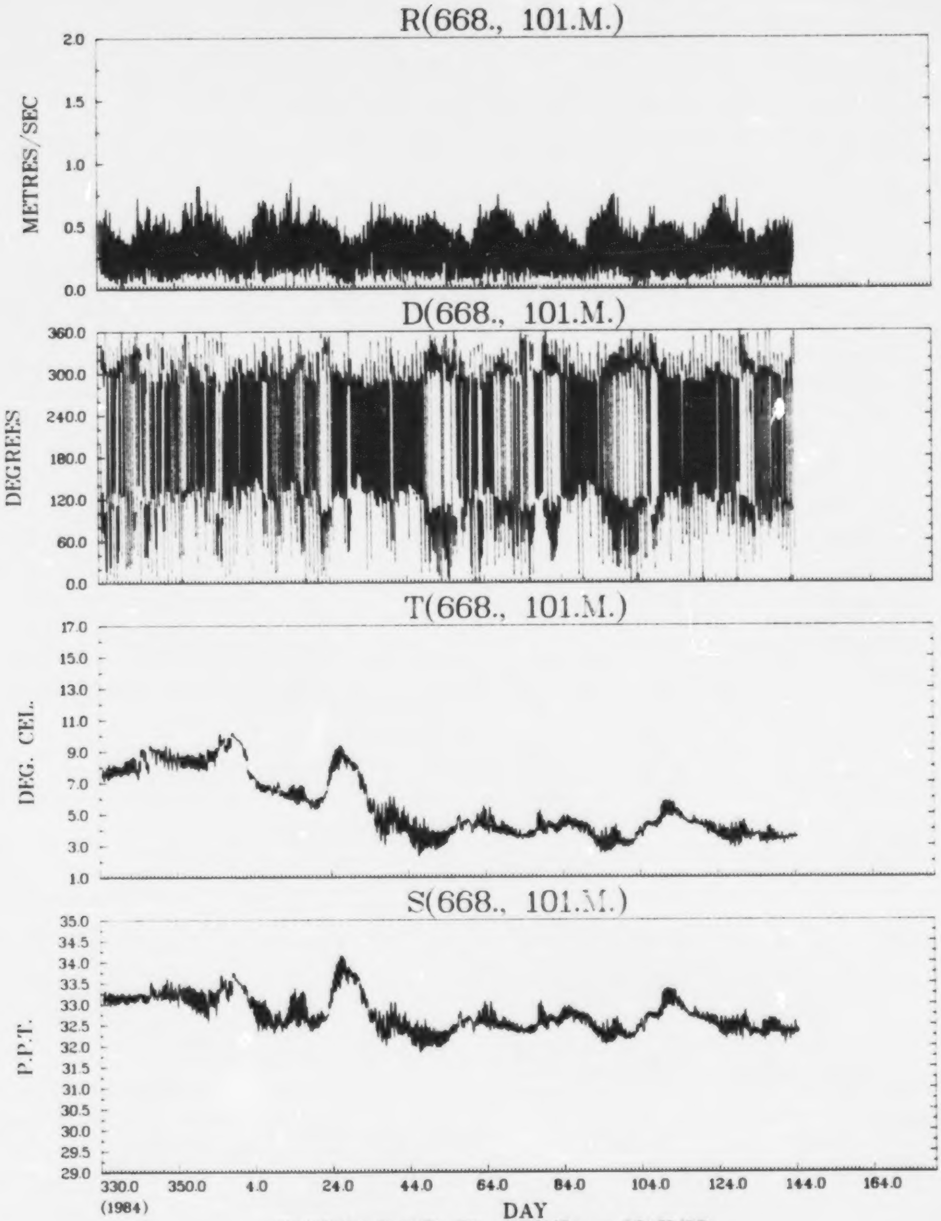

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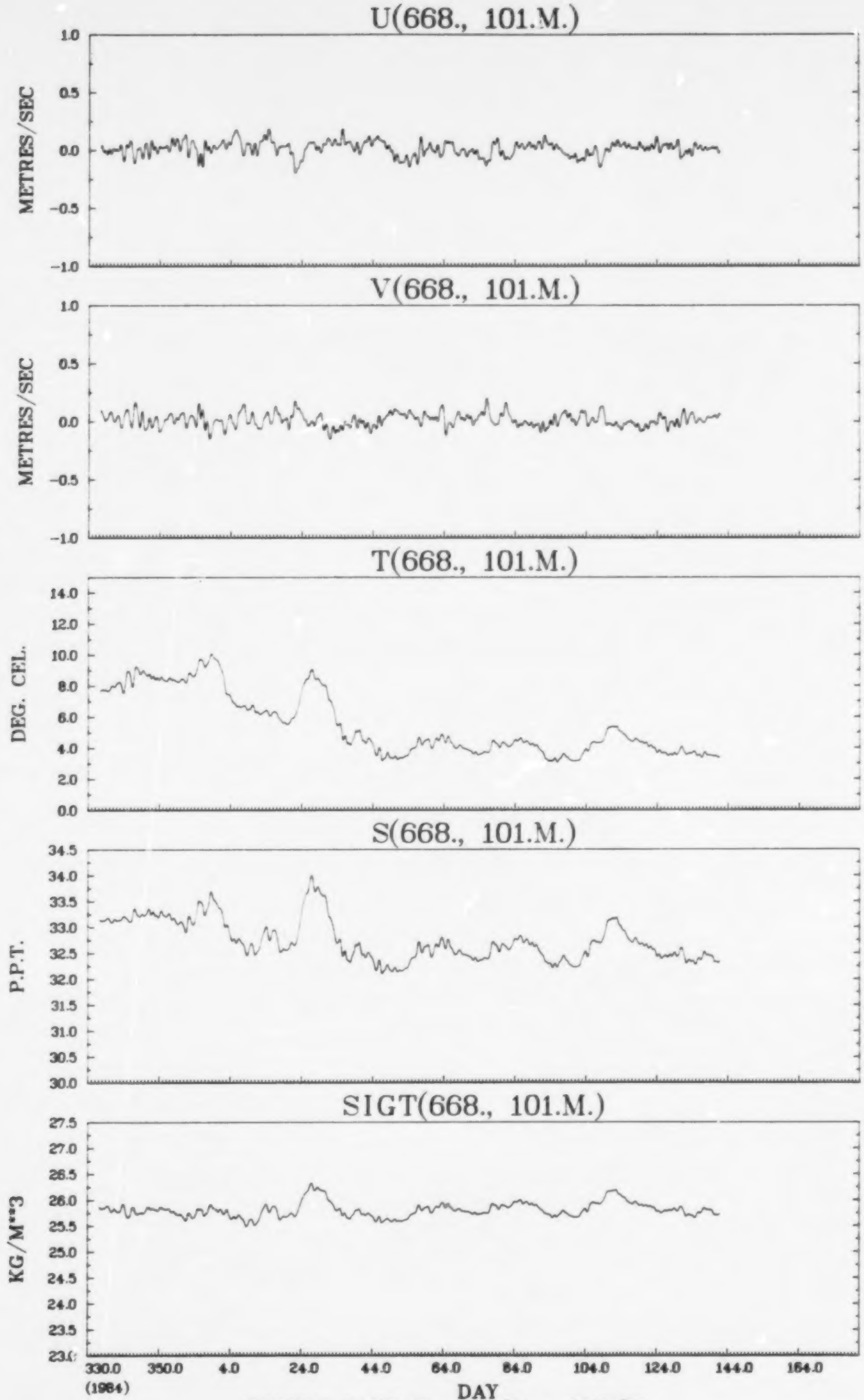

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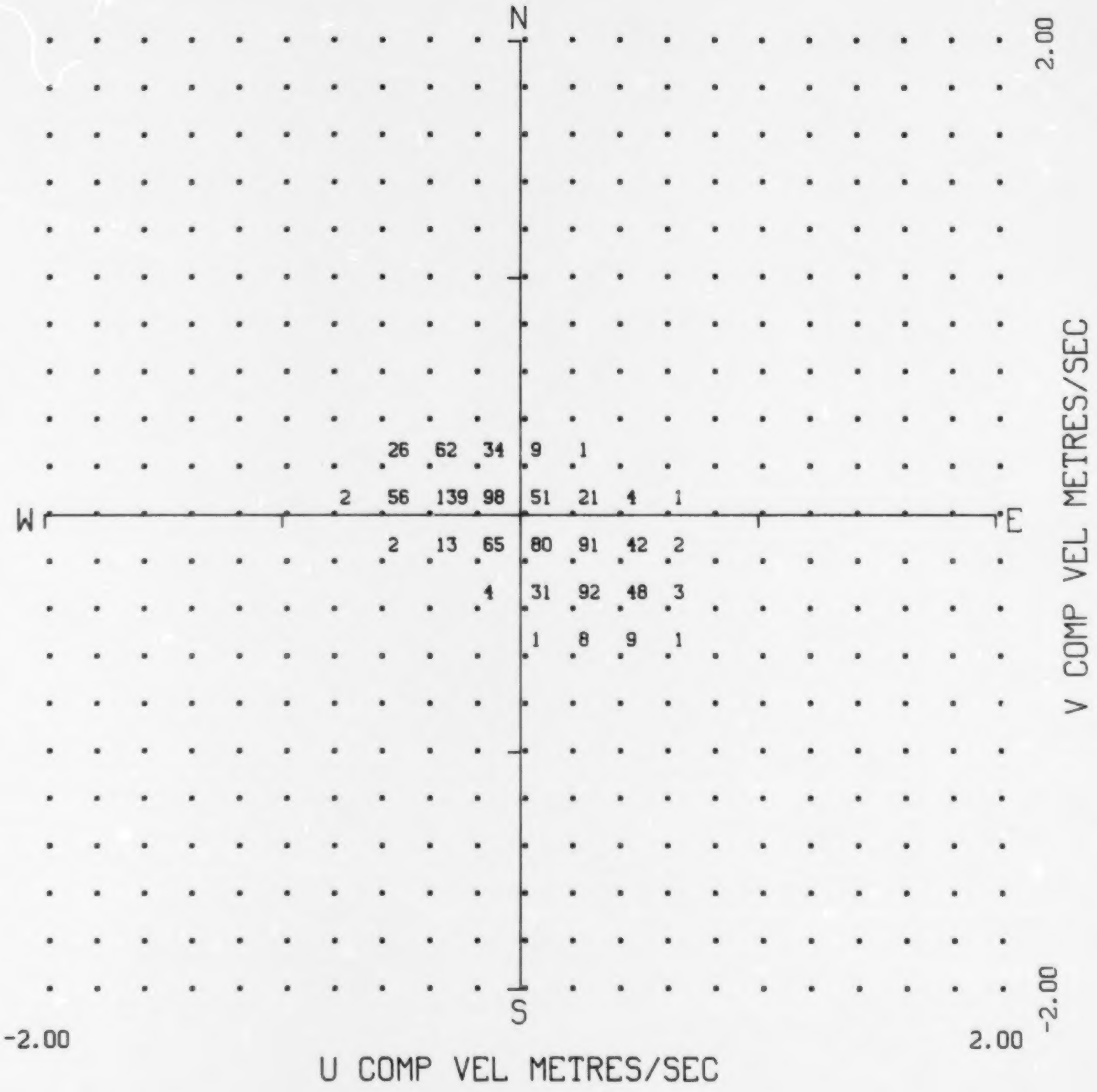

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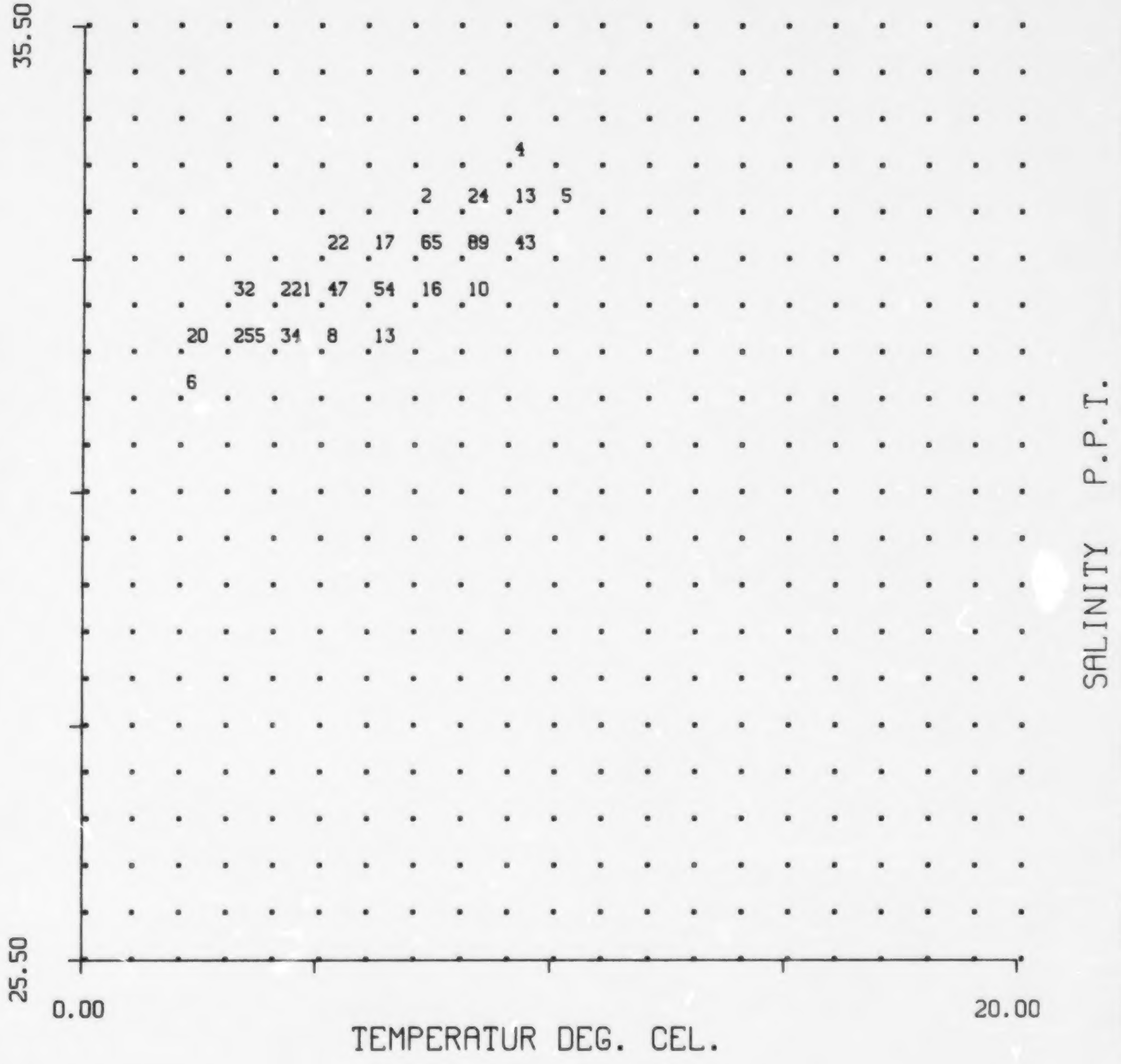

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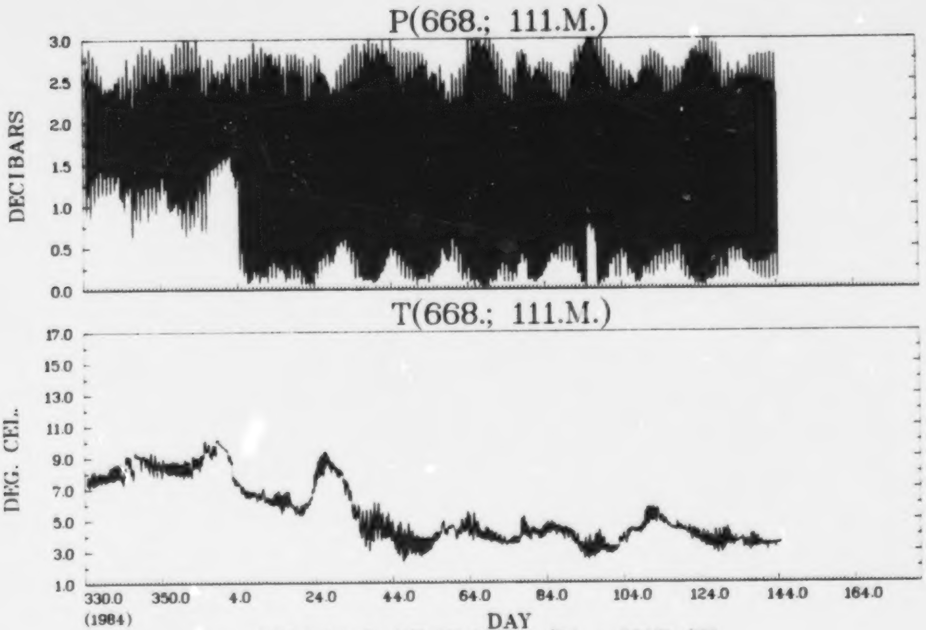

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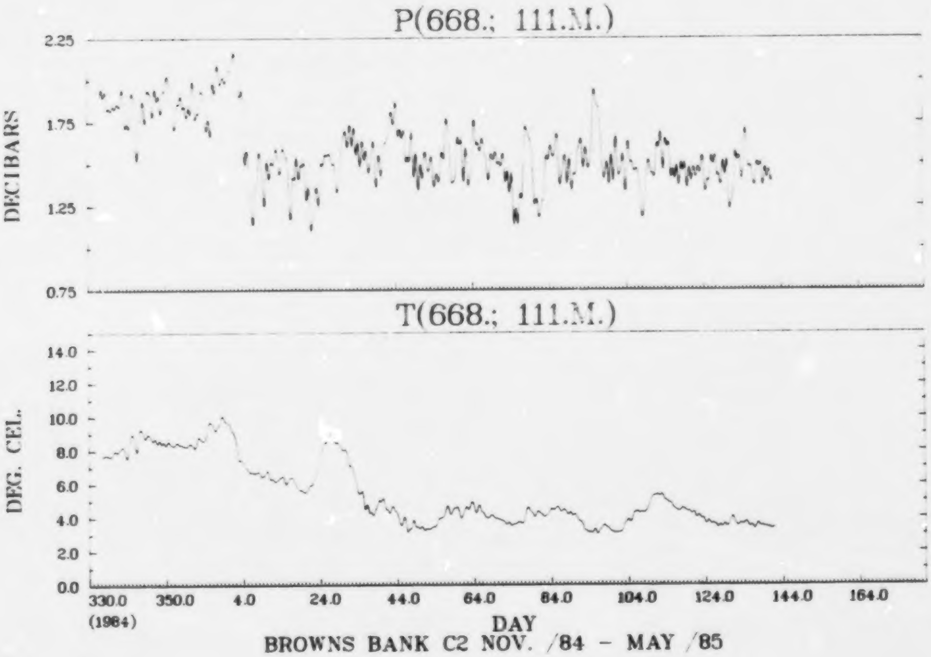

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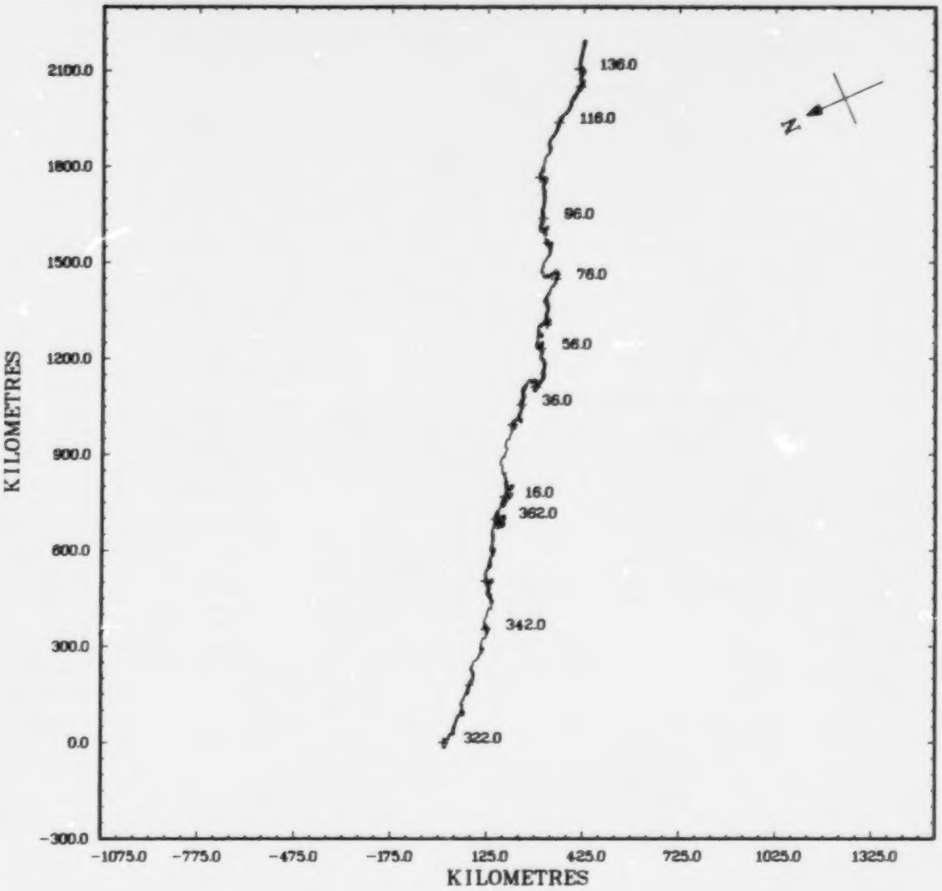

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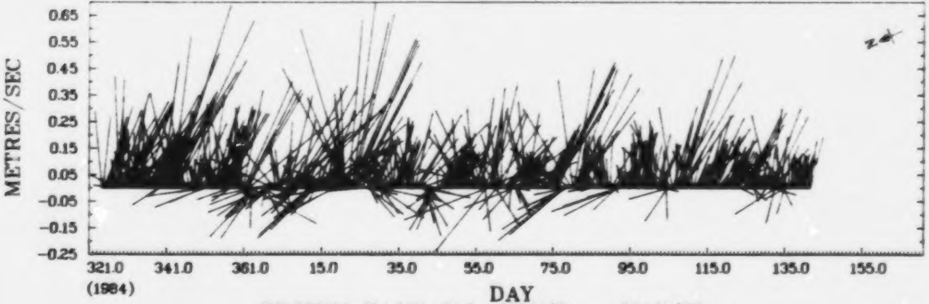

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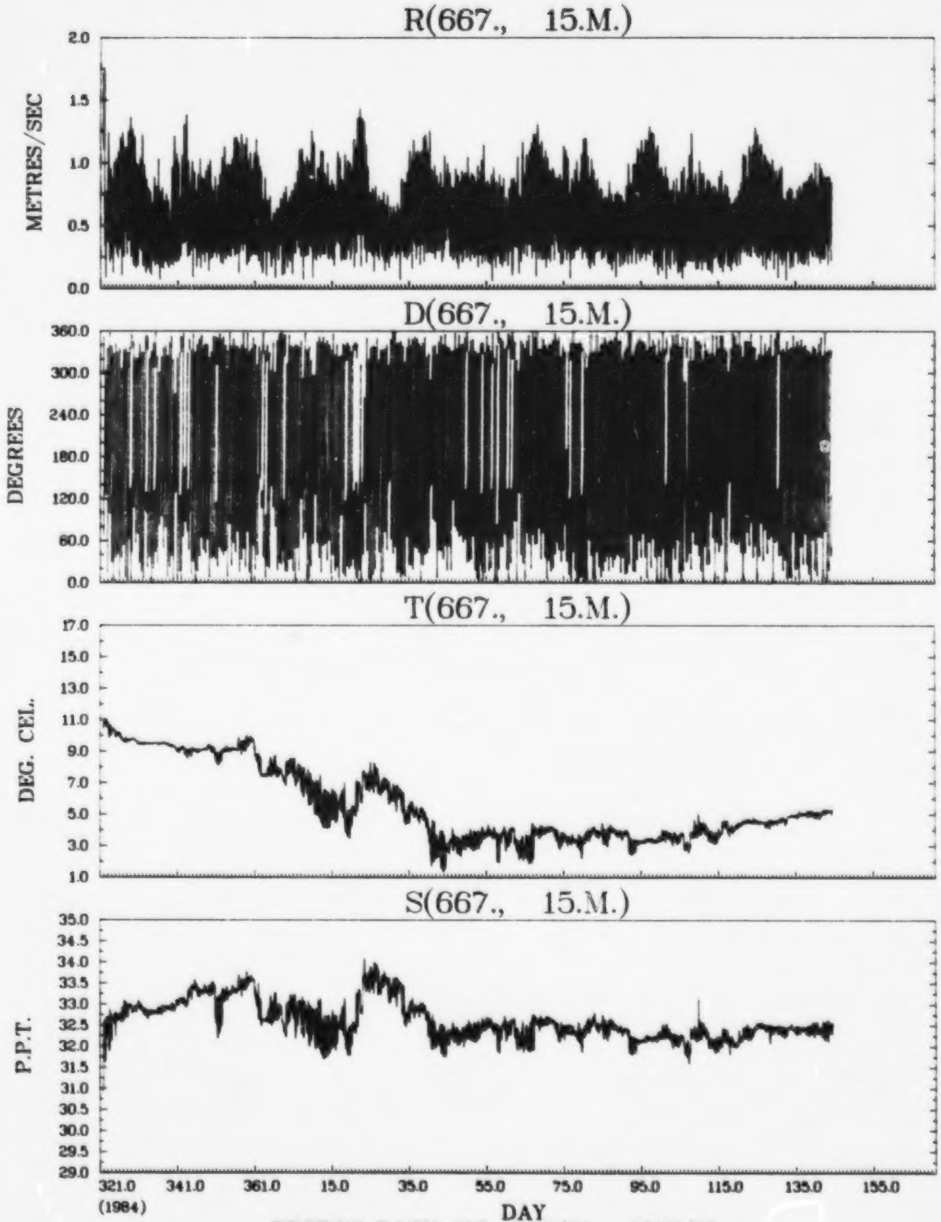

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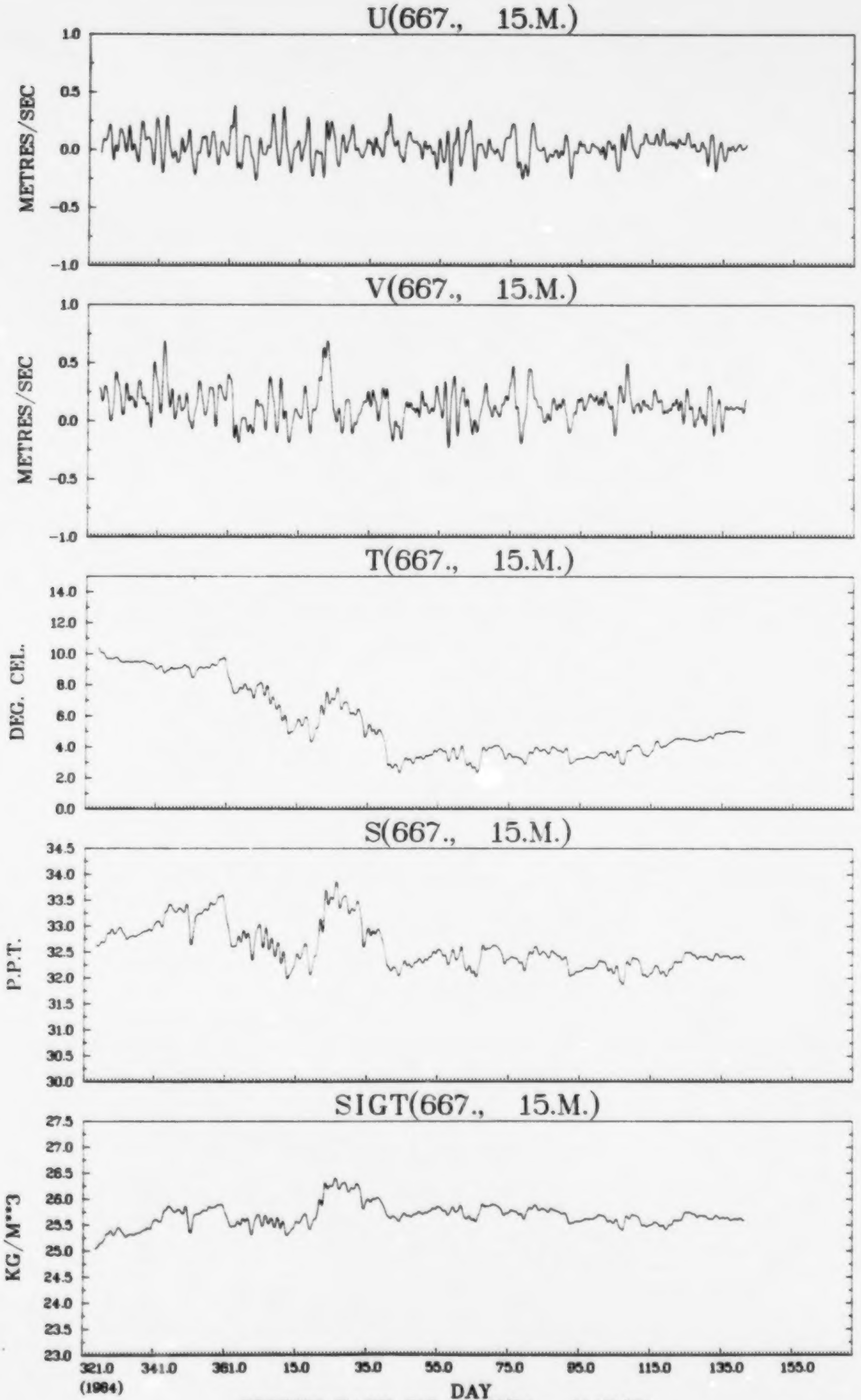

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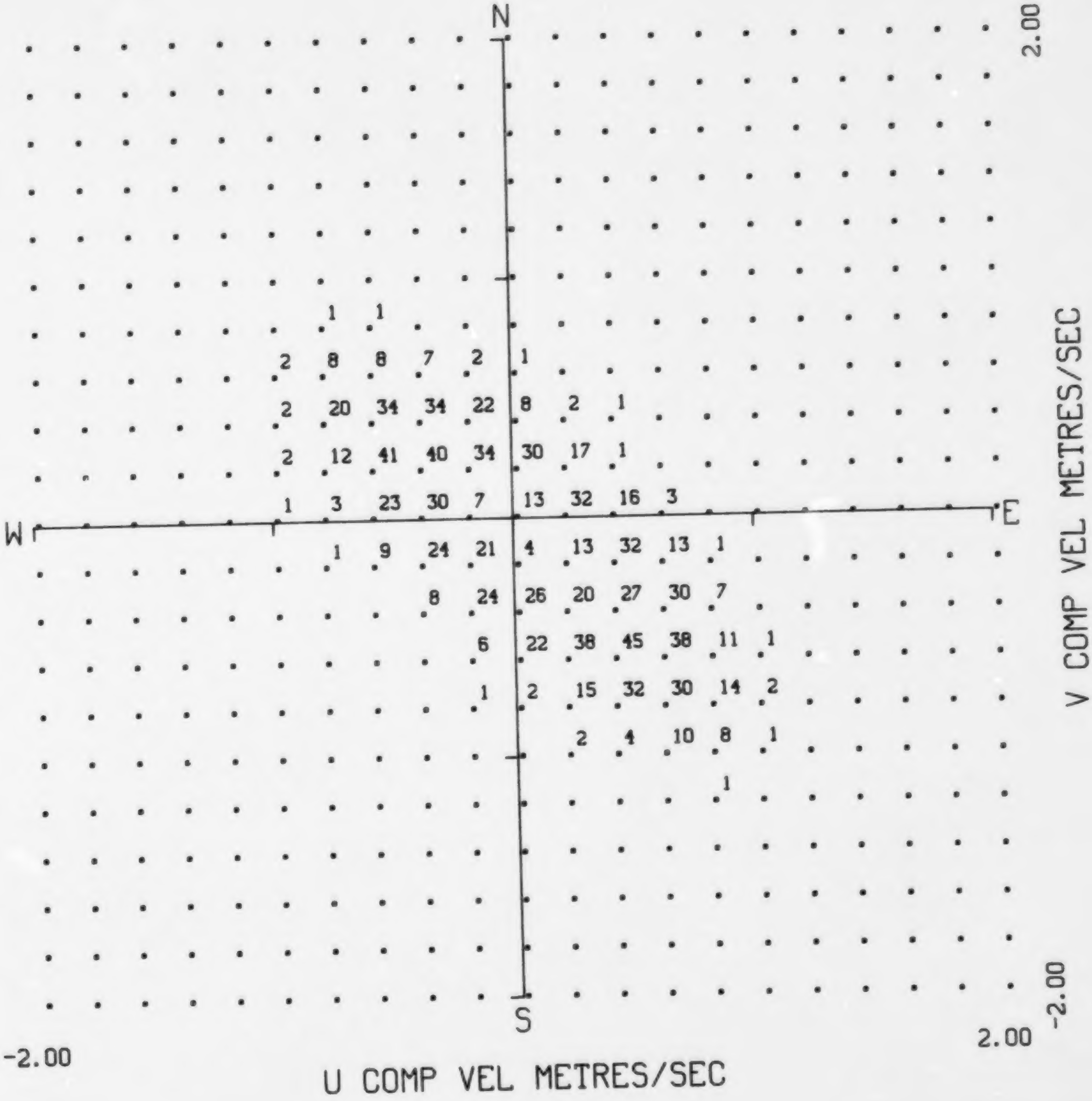

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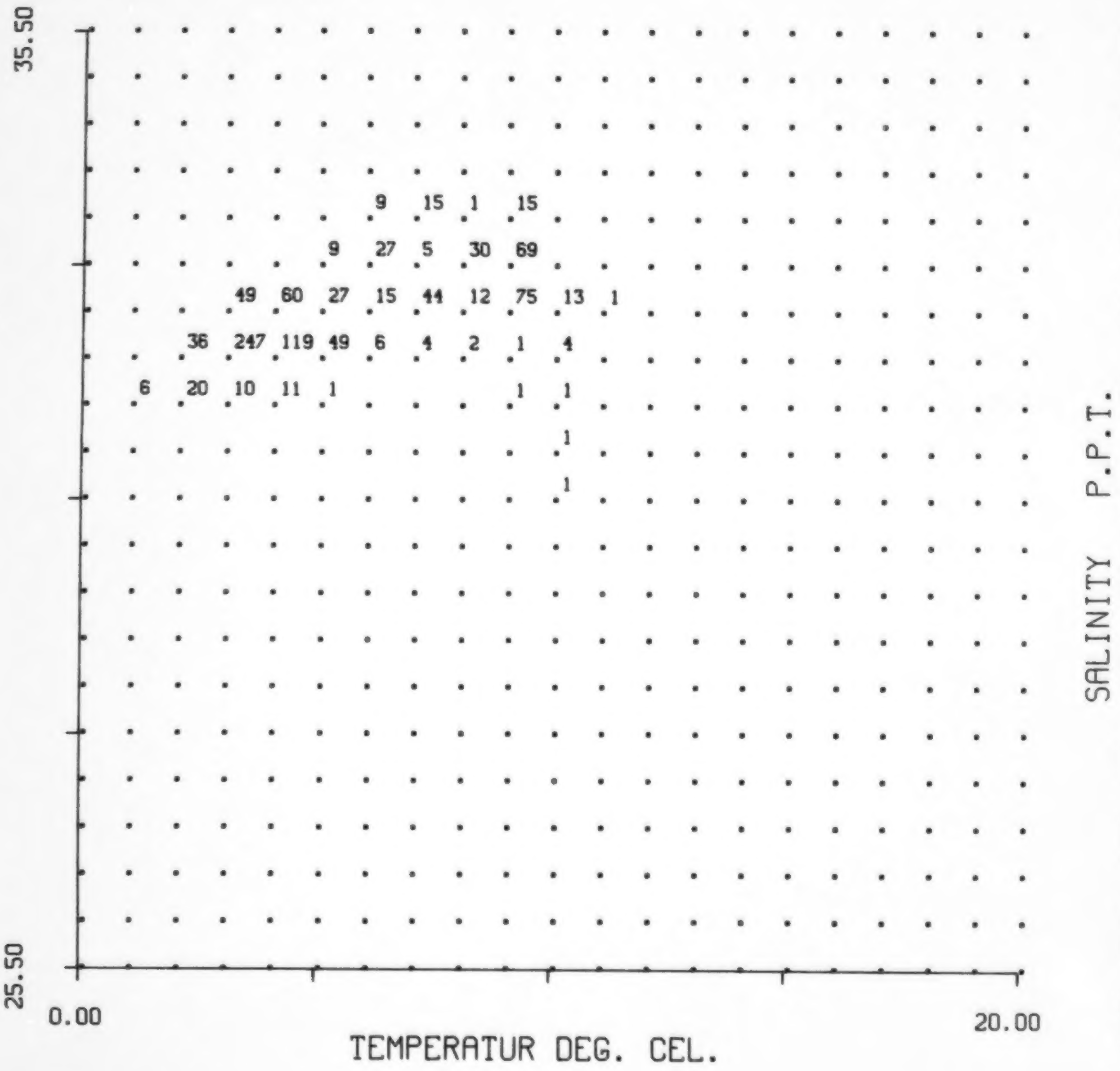

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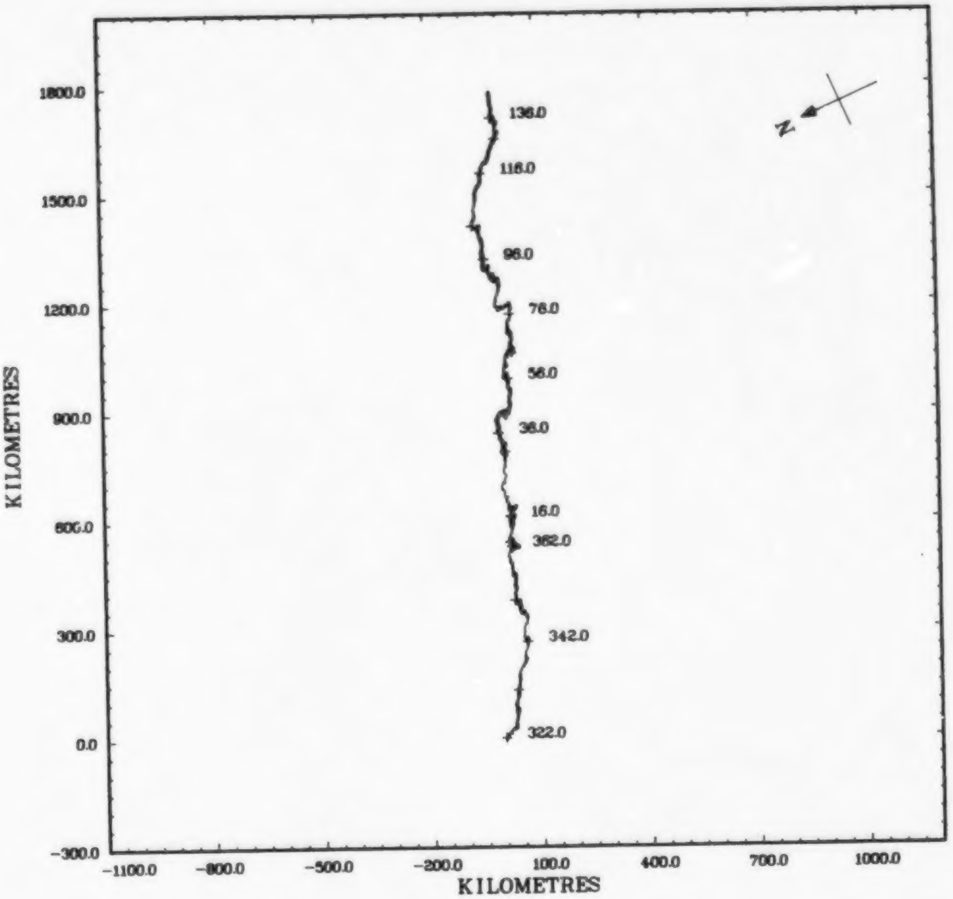

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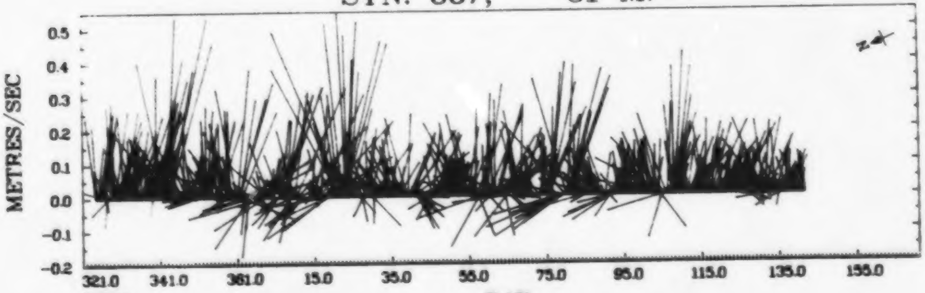

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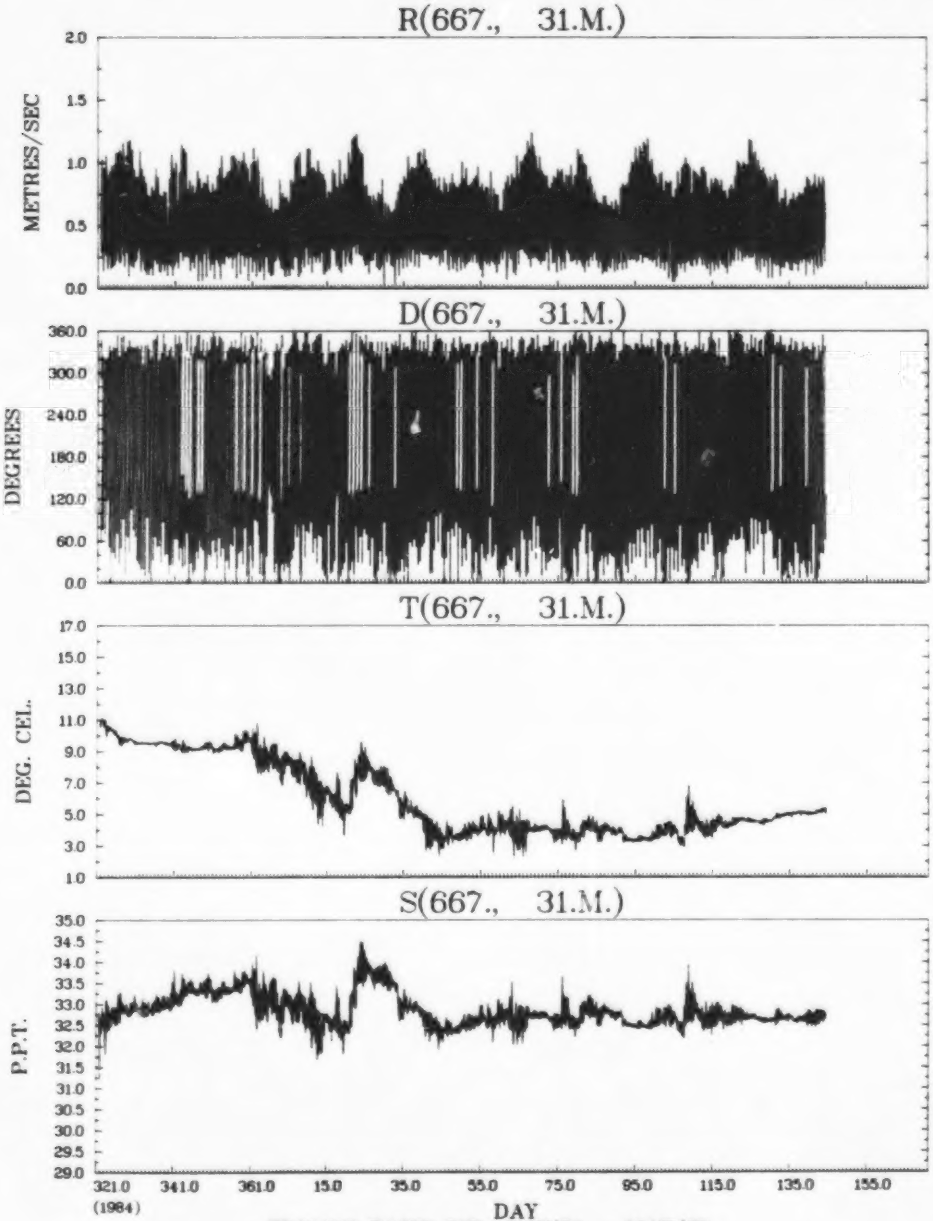

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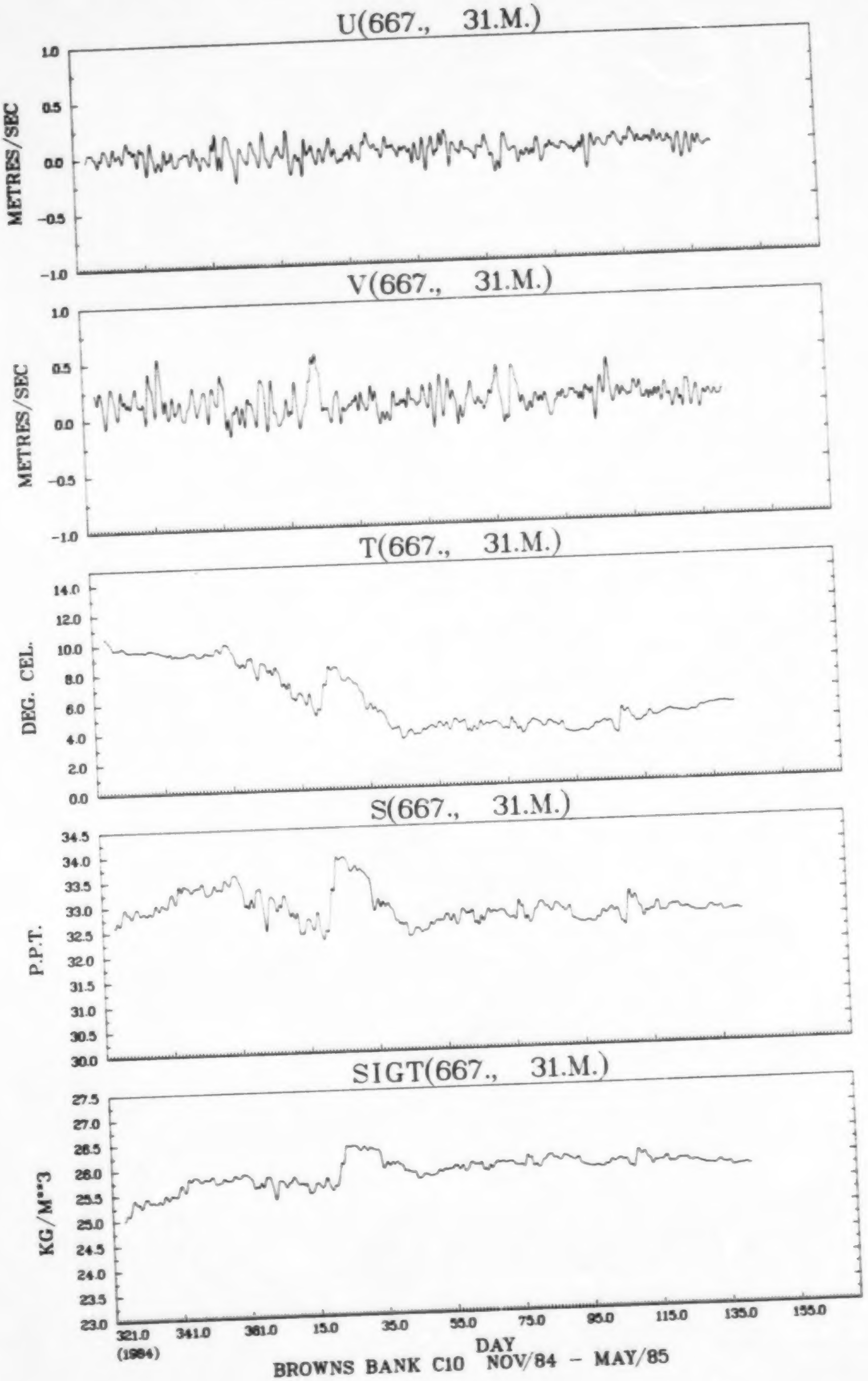

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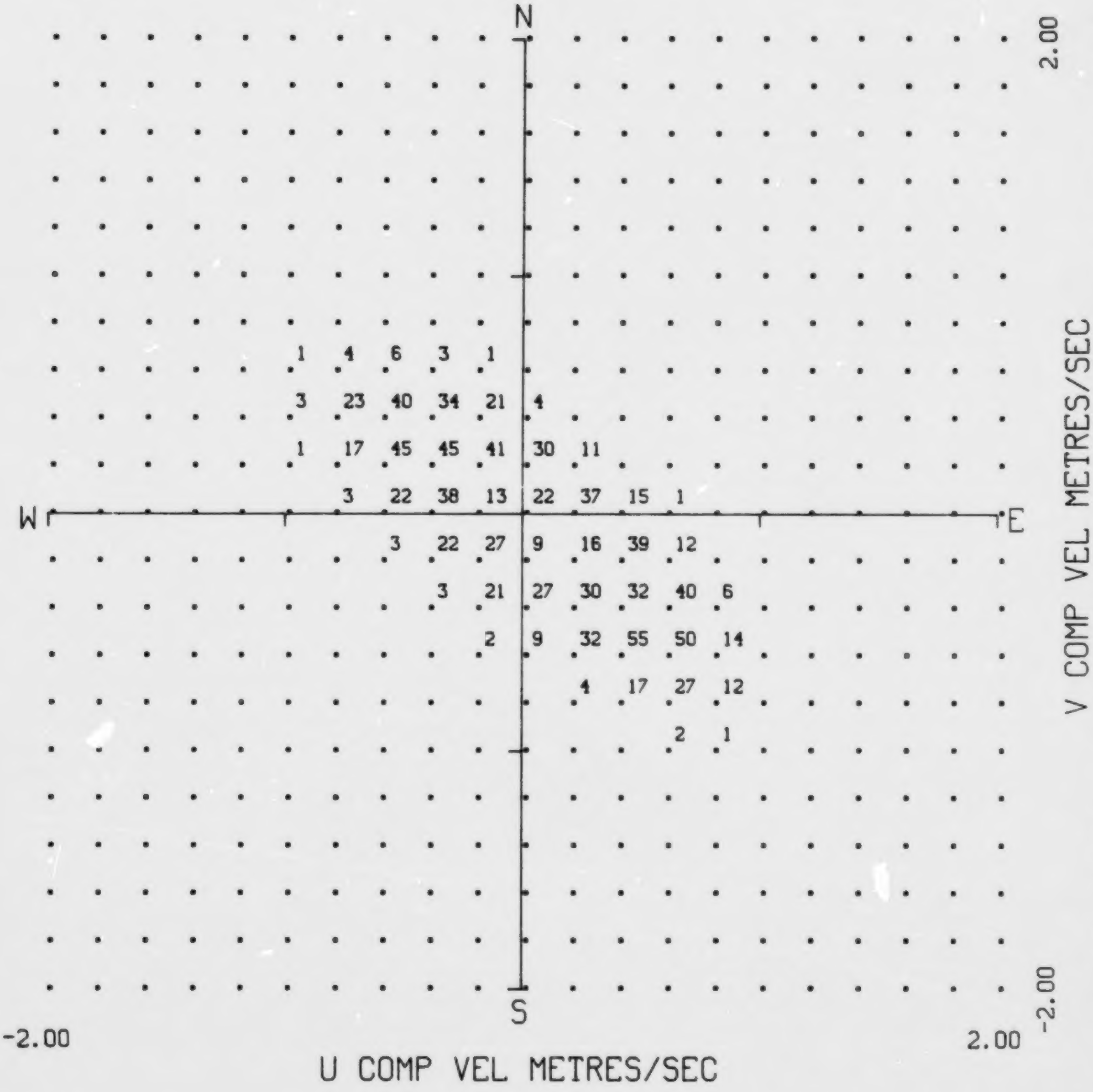

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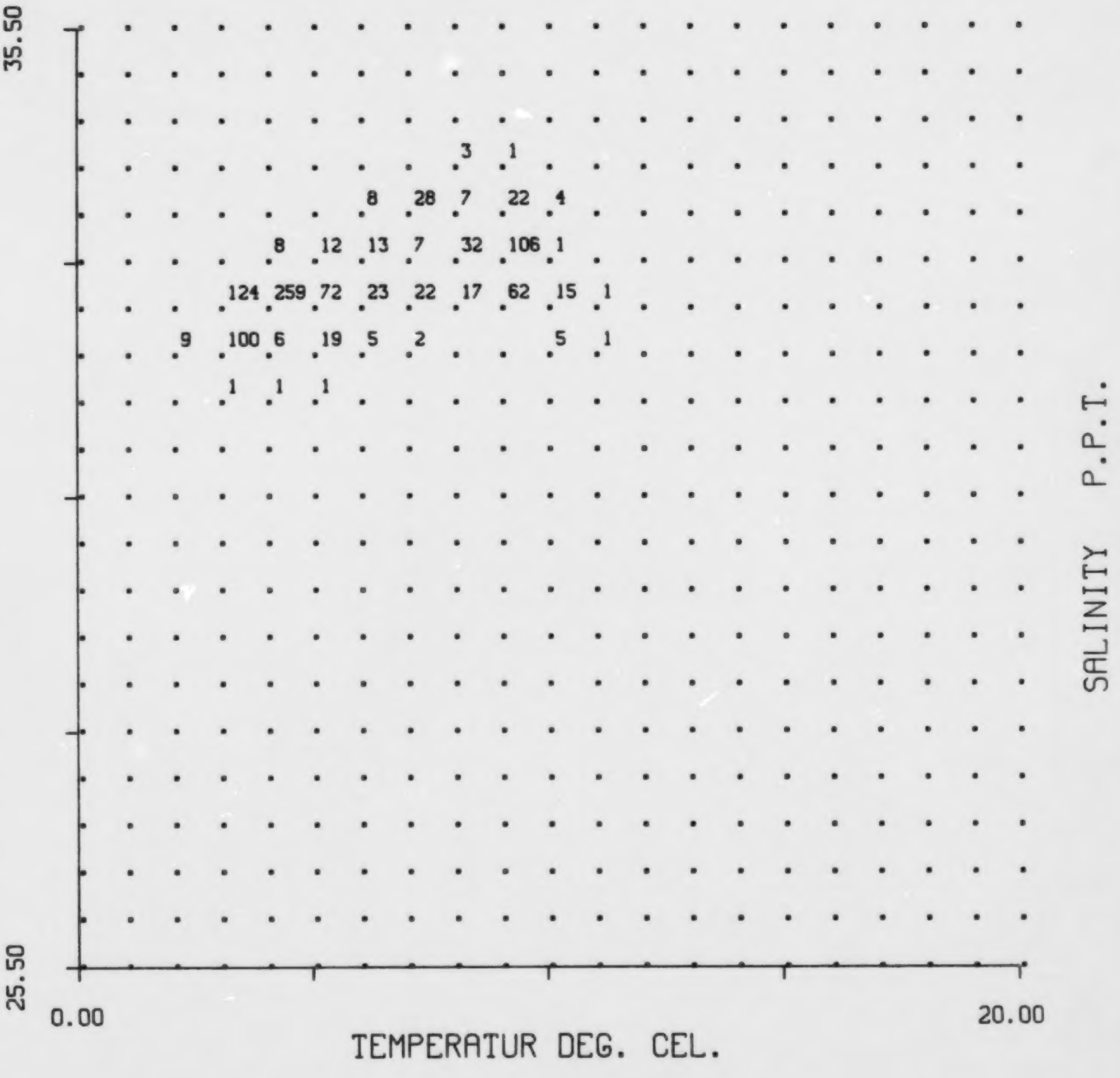

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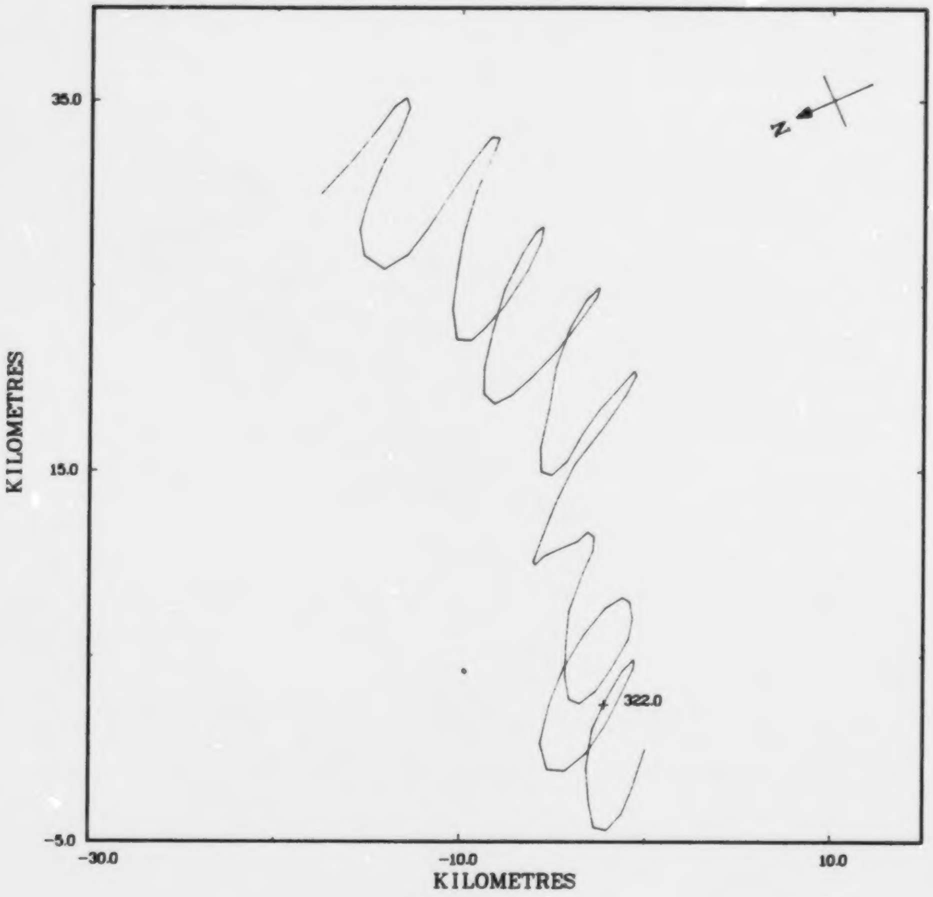

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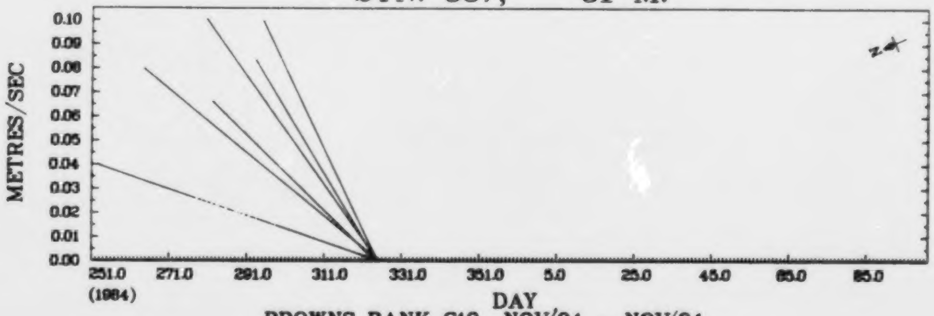

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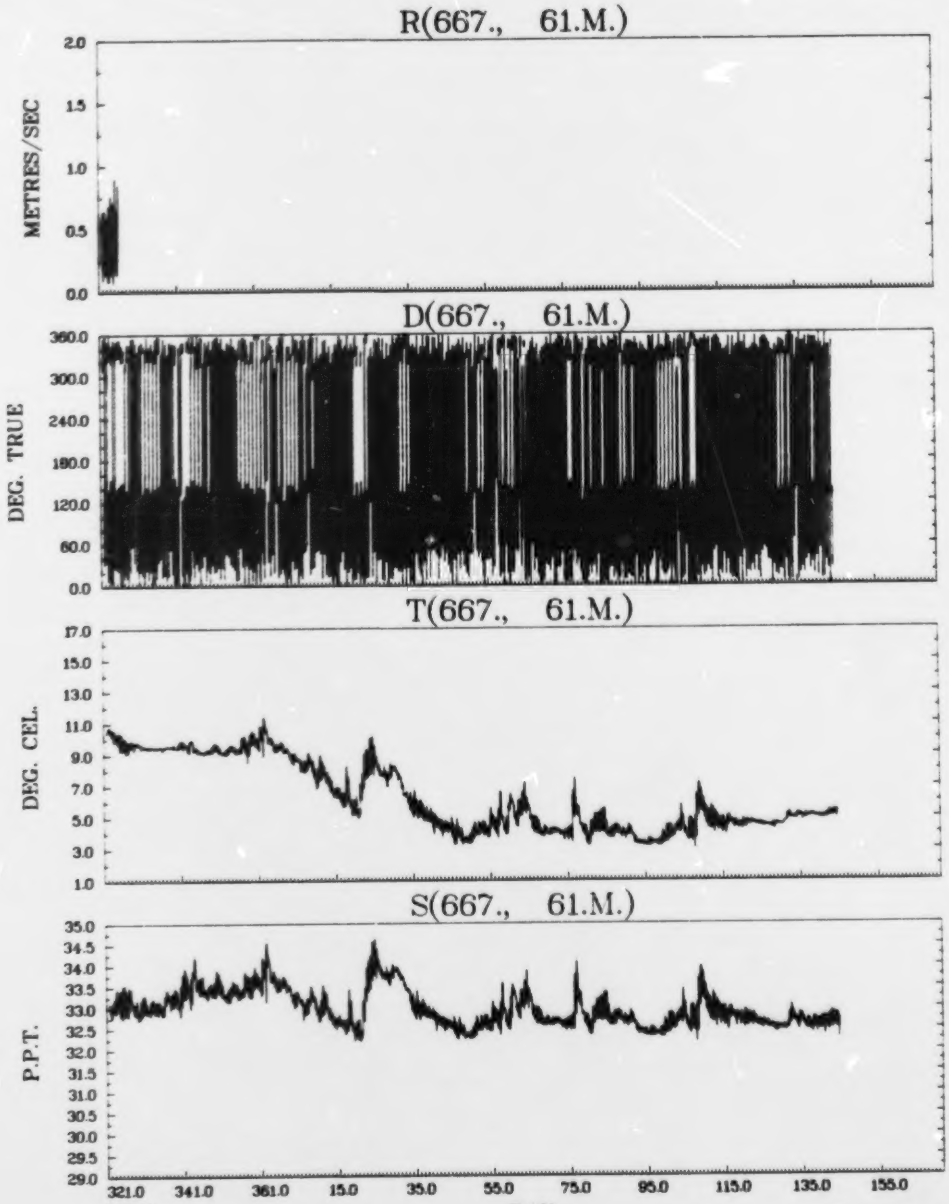

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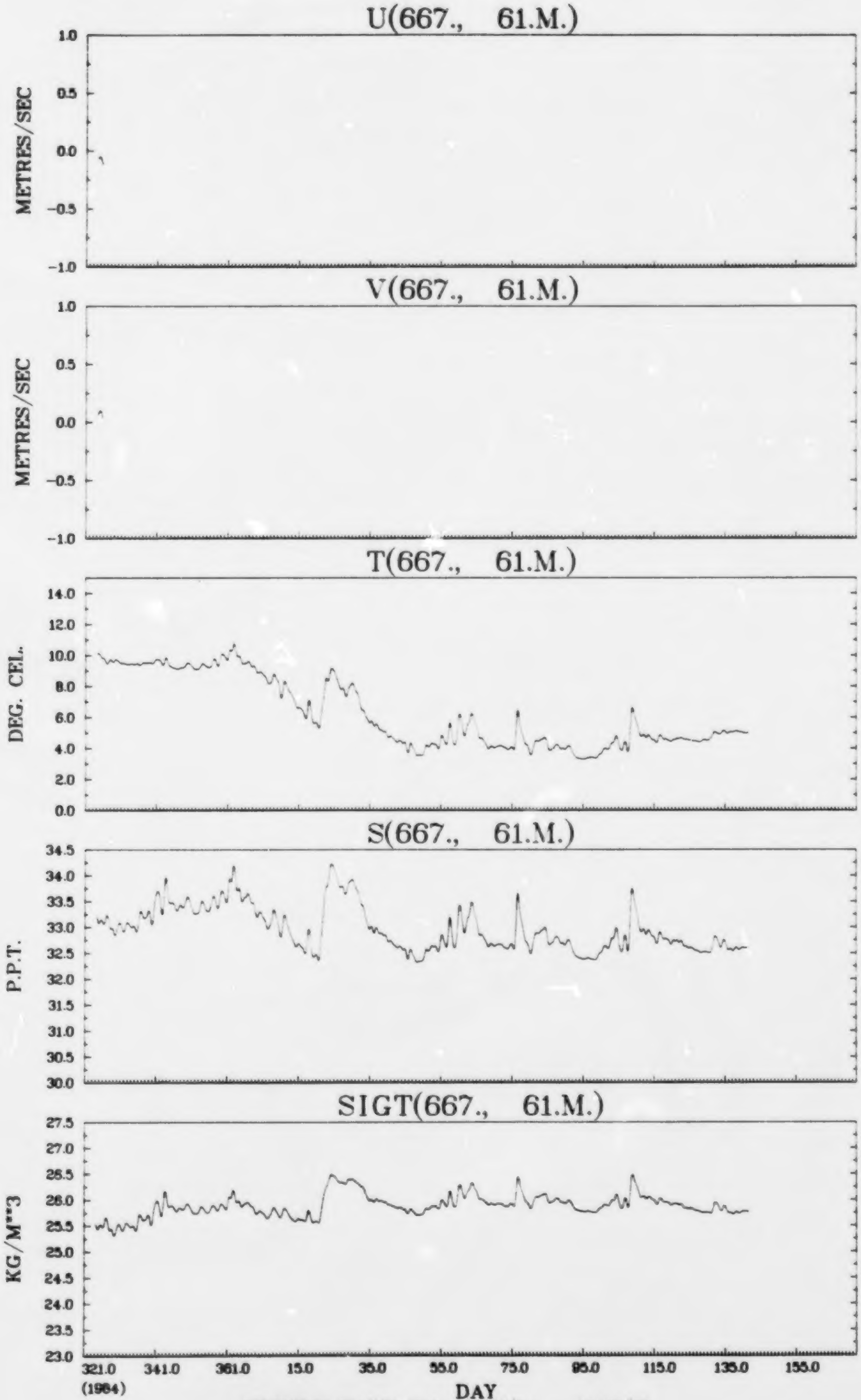

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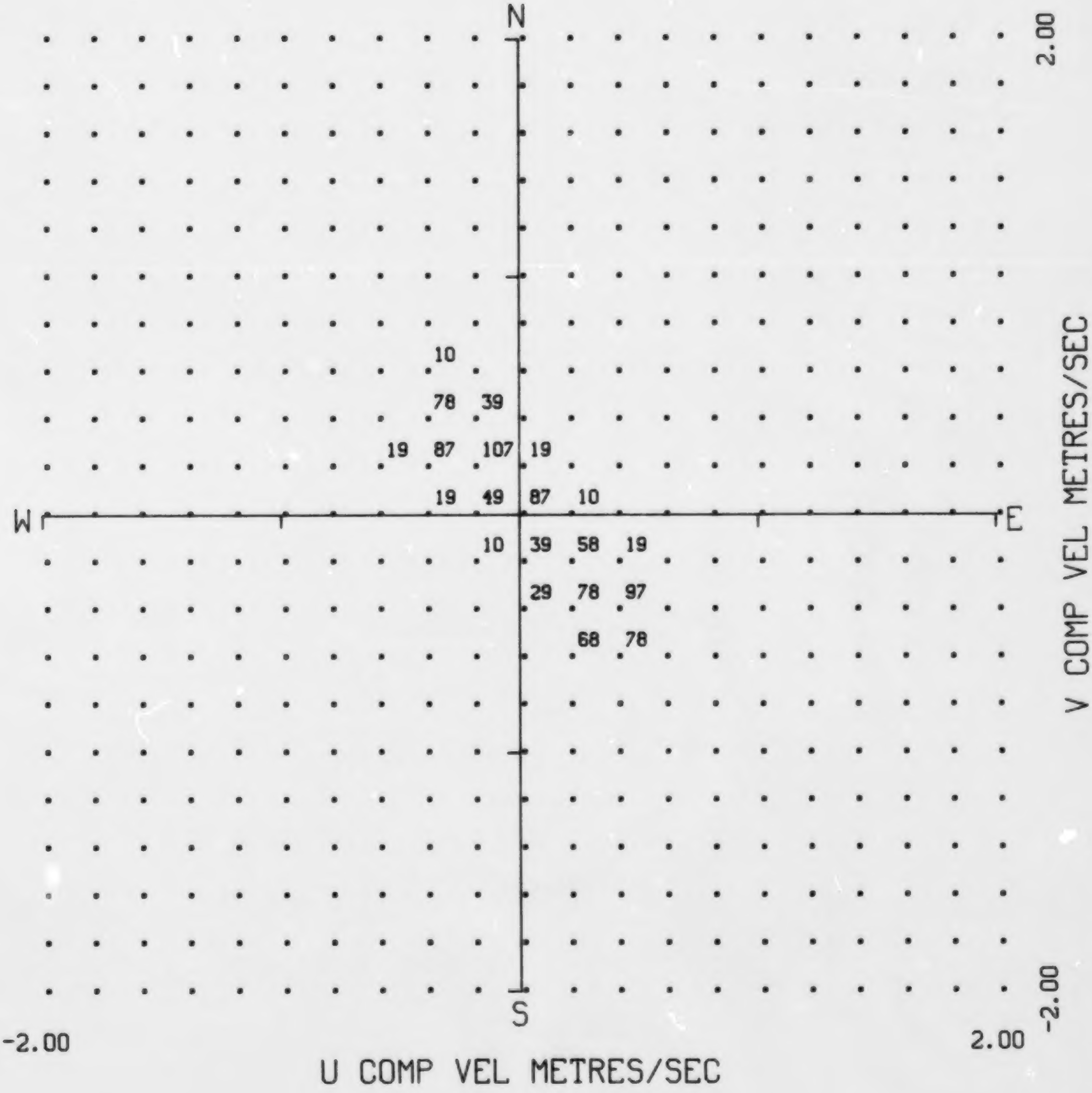

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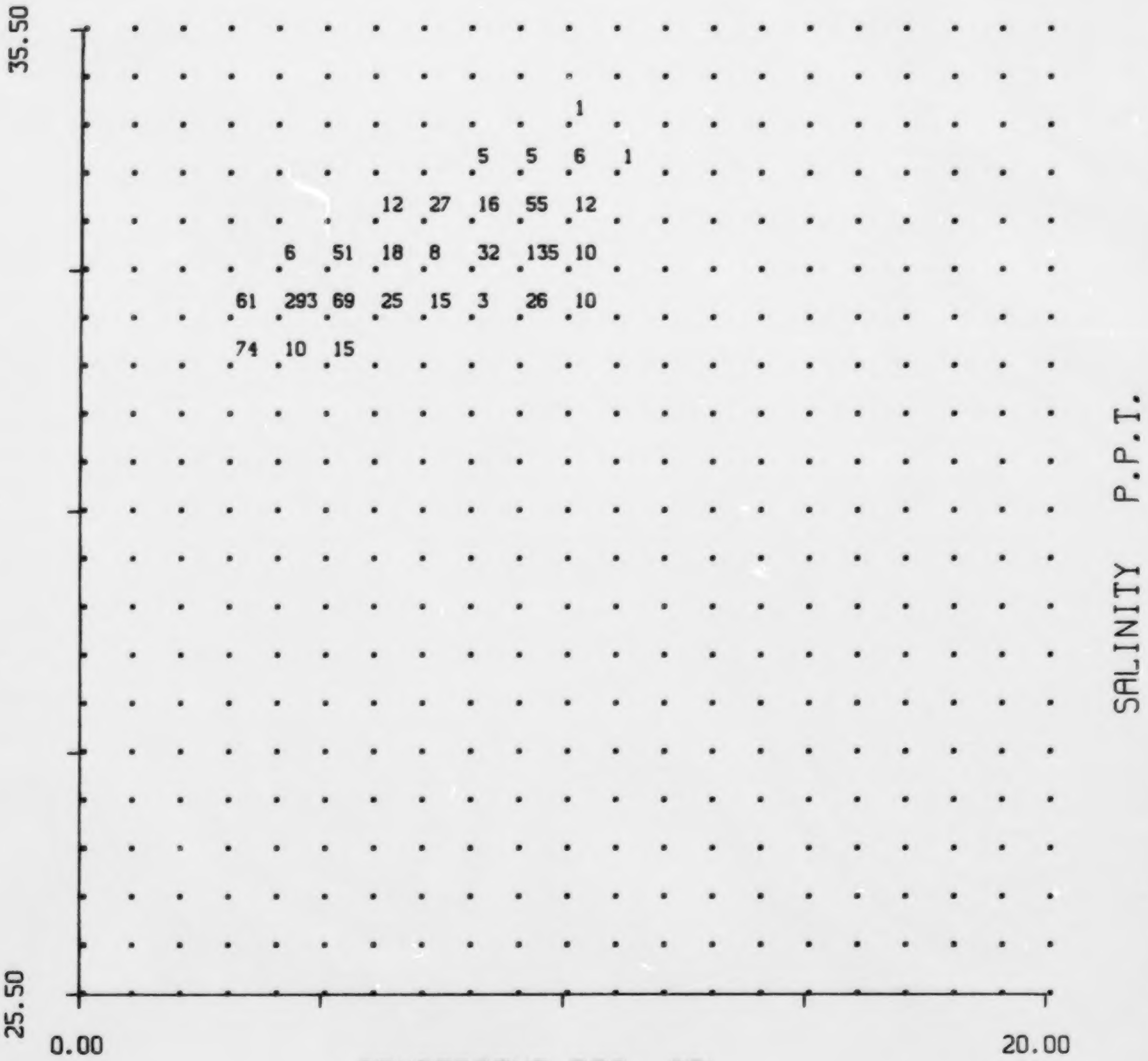

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